```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length: 0 length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query
                                                                                                                                                                                                             100.0
100.0
100.0
                                                                                                                                                                                                                                                                                                    100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            February 3, 2003, 09:22:17; Search time 0.731707 Seconds (without alignments)
482.536 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Issued_Patents AA:*

1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*

2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*

3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*

4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*

5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.3 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                             389
389
389
389
389
389
555
555
555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BB
       US-08-458 101-214
US-08-105-483-216
US-08-105-483-216
US-08-105-483-219
US-08-709-209-219
US-08-489-101-219
US-08-489-101-219
US-08-486-099-106
US-08-486-099-106
US-08-486-299-106
US-08-486-299-106
US-08-487-551A-106
US-08-487-551A-106
US-08-487-551A-106
US-08-487-551A-106
US-08-487-668A-106
US-08-487-913A-106
US-08-487-913A-106
US-08-487-913A-106
US-08-487-913A-106
US-08-487-923
US-09-361-707-93
US-09-361-707-95
US-08-483-2628-55
US-08-483-1773-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
Sequence 97, Appl Sequence 44, Appl Sequence 44, Appl Sequence 214, App Sequence 214, App Sequence 216, App Sequence 216, App Sequence 216, App Sequence 216, App Sequence 106, App Sequence 93, Appl Sequence 95, Appl Sequence 95, Appl Sequence 96, Appl Sequence 96, Appl Sequence 45, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Description
                                Ş
                                                                   Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 1
US-09-361-707-97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 97, Application Patent No. 6258937
GENERAL INFORMATION:
APPLICANT: Tong,
                            1 PLSSIFSRIGDP 12
                                                                   l Similarity
12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09361707
```

it.	44	4. 4.	4 2	41	40	9	38	37		, L) (. 1 #	. () L) i	יי	30	24	28
54	4		יט ו	υ 4.	54	54	54	. UT	4	4	ı u	· .	1 0	1 (л	59	59	59
88.5				88.5														96.7
174	174	174	174	174	174	174	170	170	55	ST UT	UI UI	55	ا ا ل	ı ⊢		174	174	174
4.	4	w	w	N	N	N	4	Ŋ	4	4.	4.	4	Α.	o	٠.	9	σ	4,
US-09-361-707-48	US-09-361-707-46	US-08-484-408A-48	US-08-480-173A-48	US-08-683-262B-56	80-1	-08-683	US-09-361-707-49	US-08-683-262B-49	US-09-361-707-90	US-09-361-707-89	US-09-361-707-87	US-09-361-707-85	US-09-361-707-84	5164485-4	11000	5204096-2	5204096-1	US-09-361-707-55
	Segmence 4												Sequence	Patent No.	Facette NO.			Sequence
48,	7	8	6	5	•	•	•	•			87	•	84	516	27.0	1 (5.	55.
App1	777	Appl	Appl	Appl	Appl	֓֞֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	777	App 1	֓֞֝֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	Appl	Aggl	Laga	Appl	5164485	2404079		5204096	Appl

ALIGNMENTS

```
묽
                                                                                                                                                            TYPE: amino acid

TOPOLOGY: linear

SEQUENCE DESCRIPTION: SEQ ID NO: 97:
US-09-361-707-97
                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 00786/287003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
TELEFAX: (617) 542-8906
INFORMATION FOR SEQ ID NO: 97:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FASESEQ for Windows Version 2.
CURRENT APPLICATION NUMBER: US/09/361,707
APPLICATION NUMBER: US/09/361,707
FILING DATE: 27-Jul-1999
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/683,262
FILING DATE: 18-JUL-1996
ATTORNEY/AGENT INFORMATION:
NAME: Creason, Gary L.
REGISTRATION NUMBER: 34,310
REFERENCY-NOOVET NUMBER: 34,310
    4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: MA
COUNTRY: USA
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: HEPA DNA VIRUS RECEPTOR NUMBER OF SEQUENCES: 117
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
    PLSSIFSRIGDP
                                                                                                                                                                                                                                     LENGTH: 55 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM Compatil
OPERATING SYSTEM: DOS
                                                                         Conservative
52
                                                                                        100.0%; Score 61; DB 4; 100.0%; Pred. No. 9.2e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     natr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Shuping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jack R.
                                                                           Mismatches
                                                                                                             Length 55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.0
                                                                       Indels
                                                                   Gaps
```

0;

```
RESULT 2
US-08-480-173A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TOPOLOGY: ur
; MOLECULE TYPE:
US-08-480-173A-44
                                                                                                                                                                                                                                                                                                                                                                                               US-08-484-408A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patent No. 6072049
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 44, Application US/08480173A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.0%; Score 61; DB 3; 1
Best Local Similarity 100.0%; Pred. No. 0.00034;
Matches 12; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                Sequence 44, Application US/08484408A Patent No. 6117653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy di
                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPAX: 612-334-8994
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: US/08/480,173A PPLICATION NUMBER: US/08/480,173A PILING DATE: 07-UN-1995 CLASSIFICATION: 435 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: PODOVICH, Thomas E
REGISTRATION NUMBER: 30,099
REFERENCE/DOCKET NUMBER: MEDIOGUSDA
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-334-8991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Thoma, HaTITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 174 amino acids
TYPE: amino acid
STRANDENNESS: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/484,408A
                                                                                                MEDIUM TYPE: Floppy
                                                                                                                                                             STREET: 80 C.
STREET: Minneapolis
STATE: MN
STATE: MN
                                                                                                                                                                                                                                                   TITLE OF INVENTION: HEPATITIS B SURFACE ANTIGEN VACCINE NUMBER OF SEQUENCES: 56
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160 PLSSIFSRIGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 80 S. scn
CITY: Minneapolis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                       COUNTRY: UZIP: 55402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: Popovich & Wiles, P.A.
80 S. 8th Street, Suite 1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thome, Hans A
VENTION: HEPATITIS B SURFACE ANTIGEN VACCINE
                                                                                                                                                                                                                   E: Popovich & Wiles, P.A.
80 S. 8th Street, Suite 1902
                                                                                                                                                                                                                                                                                                                     Thoma, Hans A
                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 3; Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-484-408A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-105-483-214
                                                   US-08-105-483-214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.0%; Score 61; DB 3; Length 174; Best Local Similarity 100.0%; Pred. No. 0.00034; Matches 12; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence 214, Application US/08105483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: 612-334-8994
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                            APPLICATION NUMBER: US/08/105,483
FILING DATE: 12-AUG-1993
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/847,951
APPLICATION NUMBER: US 07/847,951
APPLICATION NUMBER: 1902
ATTONNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2400
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Paolet
Query Match
Best Local Similarity
                                                                                                                                                            TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Popovich, Thomas E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRINT APPLICATION DATA:
APPLICATION NUMBER: US/08/105,483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE TITLE OF INVENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        160 PLSSIFSRIGDP 171
                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 281 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 07
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 30,099
REFERENCE/DOCKET NUMBER: MEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: New York
STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: C/o William S. Frommer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENGTH:
                                                                        TOPOLOGY:
                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5494807
                                                                                                      amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               174 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      612-334-8994
                                                                uss: single
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     612-334-8991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            unknown
 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MED1003USD4
 Score 61; DB 1;
Pred. No. 0.0006;
                    Length 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

밁

Matches

12;

Conservative

ç

Mismatches

```
RESULT 6
US-08-458-101-214
                                                                                                                                                                                                                                                                                                                                                                                                       US-08-709-209-214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
US-08-709-209-214
                                                                                                                                                   Sequence 214, Application US/08458101 Patent No. 5766599
                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                             Query Match 100.0%;
Best Local Similarity 100.0%;
                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/709,209

FILING DATE: 21-AUG-1996

CLASSIFICATION: 424

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/105,483

FILING DATE: 12-AUG-1993

APPLICATION NUMBER: US 07/847,951

FILING DATE: 10-AUG-1993

APPLICATION NUMBER: US 07/847,951

FILING DATE: 06-MAR-1992

ATTORNEY/ACENT INFORMATION:

NAME: Prommer, William S.

REGISTRATION NUMBER: 25,506

REFERENCE/DOCKET NUMBER: 454310-2400

TELECOMMUNICATION INFORMATION:

TELEPHONE: (212) 840-333

TRILEPHONE: (212) 840-333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 214, Application US/08709209 Patent No. 5762938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (212) 840-071
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 5.
CITY: New York
TTATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: C/o William S. Frommer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: PAOletti, Enzo
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
ACO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLECOMM: (412)
                                                                                                                                                                                                                                                           41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 281 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                              12; Conservative
                           Tartaglia, James
No. 5766599ton, Elizabeth K.
Riviere, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       530 Fifth Avenue
                                                                              Perkus, Marion E. Taylor, Jill
                                                                                                                 Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2) 0.1

840-0712

NO: 214:
                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                         Score 61; DB 1;
Pred. No. 0.0006;
                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                          Length 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                ; Sequence 216, Application US/0810; Patent No. 5494807; GENERAL INFORMATION: APPLICANT: Paoletti, Enzo; TITLE OF INVENTION: GENETICAL; TITLE OF INVENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                US-08-105-483-216
                                                                                                                                                                                                                                                                                                                                                                                                                                            뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-458-101-214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:

NAME: Frommer, William S.

REGISTRATION NUMBER: 25,506

REFERENCE/DOCKET NUMBER: 454310-2740

TELECOMMUNICATION INFORMATION:

TELEPHONE: (212) 840-3333

TELEFAX: (212) 840-0712

INFORMATION FOR SEQ ID NO: 214:

SEQUENCE CHARACTERISTICS:

LENGTH: 281 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 10036

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIA Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                STREET: 530 Fif
CITY: New York
STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: de Taisne, Charles
APPLICANT: Limbach, Keith J.
APPLICANT: Johnson, Gerard P.
APPLICANT: Pincus, Steven E.
APPLICANT: Cox, William I.
APPLICANT: Audonnet, Jean-Christophe Francis
APPLICANT: Gettig, Russell Robert
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                  COUNTRY: U
                                                                                                                                                                ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: c/o William S. Frommer
STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                          41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS:
TOPOLOGY: 1i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
FILING DATE: 01-JUN
CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 530 Fif
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: Curtis, Morris & Safford ADDRESSEE: c/o William S. Frommer STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                     PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                            216, Application US/08105483
). 5494807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : 281 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Y
                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                      GENETICALLY ENGINEERED VACCINE
                                                                                                                                                                                                                                          462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/458,101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 61; DB 1; Pred. No. 0.0006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1; Length 281;
```

0

Gaps

0,

문

APPLICATION NUMBER: US

FILING DATE: 12 CLASSIFICATION:

12-AUG-1993

US/08/105,483

```
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-105-483-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
TELEPAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 21
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
STRANDENNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent No. 5494807
GENERAL INFORMATION:
APPLICANT: Paolet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 219, Application US/08105483 Patent No. 5494807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (212) 640-07.
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: amino acids
STRANDENESS: single
TOPOLOGY: lin-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 07/847,951
APPLICATION NUMBER: US 07/847,951
PILING DATE: 06-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/105,483
FILING DATE: 12-AUG-1993
CLASSIFICATION: 424
CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 462
CORRESPONDENCE ADDRESS:
CAUTIS, Morris & Safford
ADDRESSEE: C/O William S. Frommer
STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 55.
CITY: New York
CTATE: NY
                                                                                                               NAME: Frommer, William S.
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/847,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 61; DB 1; dlarity 100.0%; Pred. No. 0.00086; Conservative 0; Mismatchen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (212)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840-0712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENETICALLY ENGINEERED VACCINE STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           216:
                                                                                 219:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   454310-2400
                                                                                                                                                          454310-2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-105-483-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-709-209-216
                                                                                                                                              밁
                                                                               RESULT 10
US-08-709-209-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 216, Application US/08709209 Patent No. 5762938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                             Sequence 219, Application US/08709209
Patent No. 5762938
                                                                                                                                                                                                         Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 12; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Paolet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION UNMBER: US/08/709,209
PILING DATE: 21-AUG-1996
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 08/105,483
PILING DATE: 12-AUG-1993
APPLICATION NUMBER: US 07/847,951
PILING DATE: 06-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
                                                                                                                                                                                                                                                                                                                                                      TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
GENERAL INFORMATION:
APPLICANT: Paoletti, Enzo
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Curtis, Morris
ADDRESSEE: c/o William S.
STREET: 530 Fifth Avenue
CITY: New York
                                                                                                                                               149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                         TYPE: amino acid
STRANDEDNESS: sin
                                                                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2400
                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE:
                                                                                                                                                                       1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                            ropology:
                                                                                                                                                                                                                                                                                                                                           ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                          389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Paoletti,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENETICALLY ENGINEERED VACCINE STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                             840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   & Safford
Prommer
                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 61; DB 1;
Pred. No. 0.00086;
, Mismatches 0;
                                                                                                                                                                                                                                  Score 61; DB 1;
Pred. No. 0.00086;
                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 389;
                                                                                                                                                                                                                                                  Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                       <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 11
US-08-458-101-216
; Sequence 216, Application US/08458101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.0%; Score 61; DB 1; Length 389; Best Local Similarity 100.0%; Pred. No. 0.00086; Matches 12; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 339 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 06-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 4543
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                   APPLICANT:
                                                                        APPLICANT: Audonnet, Jean-Christophe Francis
APPLICANT: Gettig, Russell Robert
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 467
                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
PILING DATE: 12-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION:
ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: c/o William S. Frommer
STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 389 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: Patentin Pelann ""
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 21-AUC CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET: 530 Fit
CITY: New York
STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ropology:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: c/o William S. Frommer
STREET: 530 Fifth Avenue
                                                                                                                                                        de Taisne, Charles
Limbach, Keith J.
Johnson, Gerard P.
Pincus, Steven E.
Cox, William I.
                                                                                                                                                                                                                                      fartaglia, James
No. 5765599ton, Elizabeth K.
Riviere, Michel
                                                                                                                                                                                                                                                                                              Perkus, Marion E.
Taylor, Jill
                                                                                                                                                                                                                                                                                                                                  Paoletti,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SS: single
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-AUG-1996
                                                                                                                                                                                                                                                                                                                                  Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 07/847,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US 08/105,483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/709,209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      454310-2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-458-101-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-458-101-216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION: (212) 840-333;
INFORMATION FOR SEQ ID NO: 216:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acids
STRANDENNESS:
TOPOTO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/458,101
FILING DATE: 01-JUN-1995
CLASSIFICATION: 424
ATTORNEY/AGRAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/458,10:
                                                                             ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                              APPLICANT: Limbach, Keith J.

APPLICANT: Johnson, Gerard P.

APPLICANT: Pincus, Steven B.

APPLICANT: Cox, William I.

APPLICANT: Audonnet, Jean-Christophe Francis

APPLICANT: Gettig, Russell Robert

TITLE OF INVENTION: GENEFITCALLY ENGINEERED VACCINE

TITLE OF INVENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              149 PLSSIFSRIGDP 160
                                                                                                                                                   STREET: 530 Fi
CITY: New York
STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: New York
STATE: NY
COUNTRY: USA
                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity hes 12; Conserv
                                                                                                                                                                                                  ADDRESSEE: Curtis, Morris
ADDRESSEE: c/o William S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 219, App.
                                                                                                                                                                                 530 Fifth Avenue
                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/08458101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
ilarity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                             Tartaglia, James
No. 5766599ton, Elizabeth
Riviere, Michel
de Taisne, Charles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Perkus, Marion E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Jill
                                                                                                                                                                                                                                                    467
US/08/458,101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 61; DB
Pred. No. 0.0
0; Mismatches
                                Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.00086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
```

```
당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-486-099-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0%; Score 61; DB 1; l
Best Local Similarity 100.0%; Pred. No. 0.00086;
Matches 12; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 106, Application US/08486099 Patent No. 6013263
                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 1036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPACIBLE
COMPUTER: IBM PC COMPACIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION NATA:
APPLICATION NUMBER: US/08/486,099
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                             TELEFAX: (212) 869-9741/8866
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acids
TYPE: amino acid
STRUDEDNESS: single
TOPOLOGY: lin-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2740
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
APPLICANT: Langlois, Alphonse G.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF
TITLE OF INVENTION: MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HEPATITIS
TITLE OF INVENTION: B VIRUS TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, Laura A.
REGISTRATION NUMBER: 30,742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 7872-031
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 0: CLASSIFICATION:
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PLSSIFSRIGDP 12
                                          STRANDEDNESS
                                                                                     ENGTH:
                                                            : 389 amino acida amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bolognesi, Dani E
Matthews, Thomas
Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barney, Shawn O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lambert, Dennis M.
                                                                                                                                                                       (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-486-099-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-360-107A-116
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 100.0%; Score 61; DB 3; 1
Best Local Similarity 100.0%; Pred. No. 0.00086;
Matches 12; Conservative 0; Mismatches 0;
                                                                                                                                                                US-08-360-107A-116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 116, Application US/08360107A Patent No. 6017536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/360,107A
PILING DATE: 20-DEC-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                               Matches
                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                               TELEFAX: (212) 869-9741.
TELEX: 66141 PENNIE
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR INHIBITION
TITLE OF INVENTION: OF MEMBERANE FUSION-ASSOCIATED EVENTS, INTITLE OF INVENTION: TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                   NAME: Coruzzi, Laura A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7877
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  149 PLSSIFSRIGDP 160
                                                                                                                                                                                  TOPOLOGY: unknown MOLECULE TYPE: protein
  149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                           / Match 100.0%; Score 61; DB 3; Length 389; Local Similarity 100.0%; Pred. No. 0.00086; les 12; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                          STRANDEDNESS
                                      1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10036-2711
                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bolognesi, Dani P.
Matthews, Thomas J.
Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Barney, Shawn O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jambert, Dennis M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                149
                                                                                                                                                                                                                                                                                                                                                                                                                     7872-013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INCLUDING HIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                          <u>.</u>
                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                            0
```

RESULT 15 US-08-484-223B-106 ; Sequence 106, Application US/08484223B ; Patent No. 6020459

```
GENERAL INFORMATION.

APPLICANT: Matthews, Thomas J.

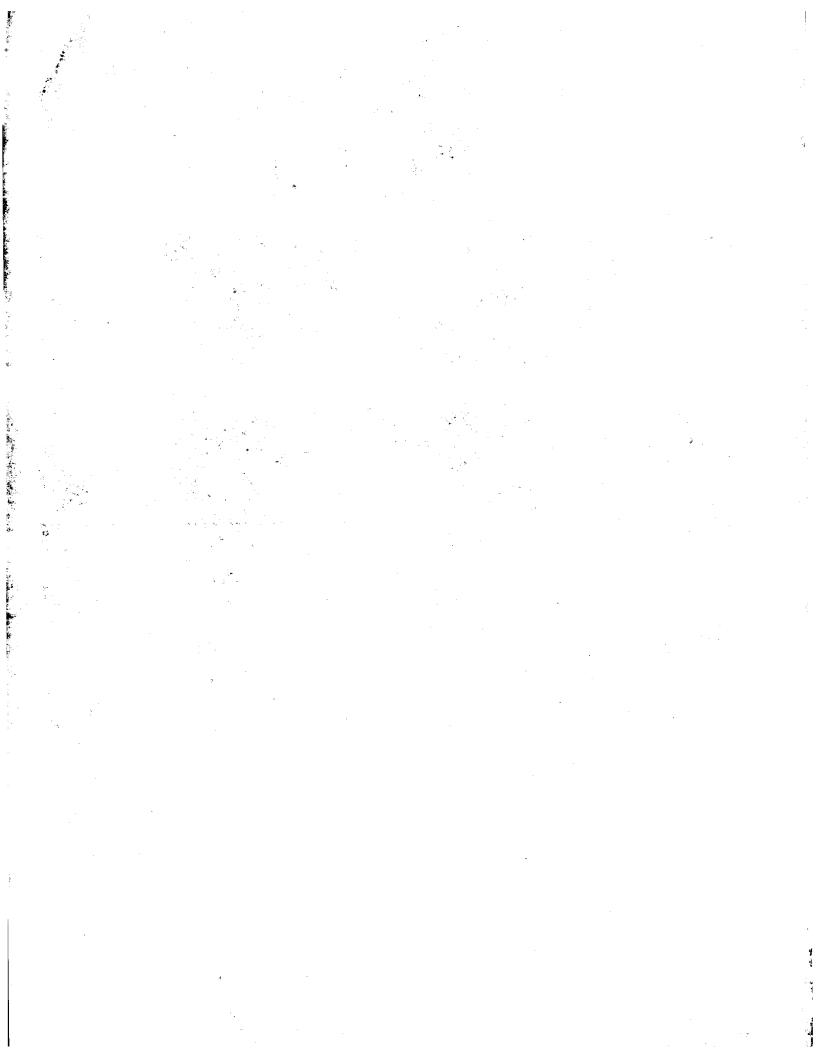
APPLICANT: Labrance, Matthews, Thomas J.

APPLICANT: Labrance, Matthews, Tophonse J.

APPLICANT: Labrance, Tophonse J.

APPLICANT: Matthews, Tophonse J.

APPLICANT:
```



```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Run on:
Published Applications AA:*

1: /cgn2_6/ptodata/2/pubpaa/USO8 NEW PUB.pep:*

2: /cgn2_6/ptodata/2/pubpaa/USO8 NEW PUB.pep:*

3: /cgn2_6/ptodata/2/pubpaa/USO6 NEW PUB.pep:*

4: /cgn2_6/ptodata/2/pubpaa/USO7_NEW PUB.pep:*

5: /cgn2_6/ptodata/2/pubpaa/USO7_NEW PUB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*

7: /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*

9: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

9: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

10: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

11: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

12: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

13: /cgn2_6/ptodata/2/pubpaa/USO9_NEW_PUB.pep:*

14: /cgn2_6/ptodata/2/pubpaa/USO0_NEW_PUB.pep:*

15: /cgn2_6/ptodata/2/pubpaa/USO0_NEW_PUB.pep:*

16: /cgn2_6/ptodata/2/pubpaa/USO0_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122226 seqs, 20178551 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 February 3, 2003, 09:25:53; Search time 0.439024 Seconds (without alignments) 551.547 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIE	
Ö	

18 40		1	-		15 44		140	12 49	11 52	10 52	54	54	7 54	54	54	54	59	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 61	Result No. Score
65.6	65.6		1	72.1	72.1	75.4	75.4	80.3	85.2	85.2	88.5		88.5	88.5		88.5		96.7	100.0	Query Match 1
174	64	1/4	1	174	174	174	174	174	174	174	400	281	174	174	174	170	389	174	281	Length
10	10	5	,	3	10	10	10	10	10	10	9	9	10	10	10	10	9	10	٠	BB
US-09-818-066-42	US-09-917-340-85	US-U9-818-066+57	10 00 010 000 UI	IIS-09-818-066-54	US-09-818-066-37	US-09-818-066-47	US-09-818-066-45	-818	US-09-818-066-58	US-09-818-066-50	US-10-209-264-3	US-09-247-890-10	US-09-818-066-56	US-09-818-066-48	US-09-818-066-46	US-09-818-066-49	US-09-821-877-2	US-09-818-066-55	US-09-247-890-12	ID
3 0	00	Sequence 57, Appl	Iddw 'te pamanhae		7	47,	45,		58,		ω,	10,	56.	48.		Sequence 49, Appl	Sequence 2, Appli	Sequence 55, Appl	Sequence 12, Appl	Description

ALIGNMENTS

```
RESULT 2
US-09-818-066-55
US-09-818-066-55; Sequence 55, Application US/09818066; Petent No. US20020032307A1
GENERAL INFORMATION:
APPLICANT: Shuping Tong et al.
                                                                                                                                                                                                                                                                                                                                                                        US-09-247-890-12

Sequence 12, Application US/09247890

Publication No. US20020198162A1

GENERAL INFORMATION:

APPLICANT: Punnonen, Juha
APPLICANT: Bass, Steven H.

APPLICANT: Whalen, Robert Gerald
APPLICANT: Whalen, Robert Gerald
APPLICANT: Maxygen, Inc.

FITLE OF INVENTION: Antigen Library Immunization
FILE REFERENCE: 0.18097-028710US

CURRENT FILING DATE: 1999-02-10

EARLIER APPLICATION NUMBER: US/09/247,890

CURRELER APPLICATION NUMBER: US 60/074,294

EARLIER APPLICATION NUMBER: US 60/074,294

EARLIER APPLICATION NUMBER: US 60/105,509

EARLIER FILING DATE: 1998-10-23

NUMBER OF SEQ ID NOS: 25

SOFTWARE: Patentin Ver. 2.0

SEQ ID NO 12

LENGTH: 281

TYPE: PAT

ORGANISM: Hepatitis B virus

US-09-247-890-12
                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Watches 12; Conserve
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                            41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                          100.0%; Score 61; DB 9; ilarity 100.0%; Pred. No. 0.00052; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                  Length 281;
                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                            0
```

Gaps

TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:

CITY: Boston

STREET: 225 Franklin Street

Pish & Richardson P.C.

ADDRESSEE:

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 3
US-09-821-877-2
                                                                                                                              SOFTWARE: FastSEQ for Windows Version 4.0; SEQ ID NO 2; LENGTH: 389; TYPE: PRT; ORGANISM: Hepatitis B Virus US-09-821-877-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-818-066-55
                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/09821877
Patent No. US20020177124A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 91.7
Matches 11; Conservative
                                                Query Match
Best Local Similarity 91.7
Matches 11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                     FILE REFERENCE: 6794 US.O1
CURRENT APPLICATION NUMBER: US/09/821,877
CURRENT FILING DATE: 2000-03-03
NUMBER OF SEQ ID NOS: 8
                                                                                                                                                                                                                                                                                                                                   APPLICANT: Abbott Laboratories
APPLICANT: Coleman, Paul P.
APPLICANT: Mushahwar, Isa K.
TITLE OF INVENTION: Hepatitis B Virus Surface Antigen Mutant
TITLE OF INVENTION: And Methods Of Detection Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 55: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160 ÞISSÍFSRÍGDÞ 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 PLSSIFSRIGDP 12
1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PAtentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:

PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 55:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00786/287002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
TELEFAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/683,262 FILING DATE: 18-JUL-1996 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: Massachusetts COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 174 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02110-2804
                                                                       96.7%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96.7%; Score 59; DB 10;
91.7%; Pred. No. 0.00073;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Mismatches
                                                    1; Mismatches
                                                                       Score 59; DB 9;
Pred. No. 0.0017;
                                                                                             DB 9; Length 389;
                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                      ٥.
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-818-066-49
                                                                                                                                                                                                                                                                                            RESULT 5
US-09-818-066-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-818-066-49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 49, Application US/09818066
Patent No. US20020032307A1
GENERAL INFORMATION:
                                                                                                                   Sequence 46, Application US/09818066

Patent No. US20020032307A1

GENERAL INFORMATION:
APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pish & Richardson P.C.
ADDRESSEE: Pish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEX: 200154
INFORMATION FOR SEQ ID NO: 49:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/683,262
FILING DATE: 18-JUL-1996
ATTORNEY/AGENT INFORWATION:
NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00786/287002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
                                                                                                                                                                                                                                                                                                                                                                                     156 PIŚŚIFŚRTGDP 167
                                                                                                                                                                                                                                                                                                                                                                                                                           1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOPTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 49:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |:|||||||||
|PISSIFSRIGDP 160
COMPUTER READABLE FORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 170 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (617) 542-8906
                      ZIP: 02110-2804
                                        COUNTRY: U.S.A.
                                                              STATE: Massachusetts
                                                                                  CITY: Boston
                                                                                                      STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 54; DB 10; Length 170;
Pred. No. 0.0058;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-818-066-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-818-066-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 48, Application US/09818066
Patent No. US20020032307A1
GENERAL INFORMATION:
APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
      INFORMATION FOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEX: 200154
INFORMATION FOR SEQ ID NO: 46:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160 PISSIFSRTGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match 88.5%;
Local Similarity 83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 PLSSIFSRIGDP 12
                                                      ATTORNEY/AGENT INFORMATION:

NAME: Fraser, Janis K.

REGISTRATION NUMBER: 31,819

REFERENCE/DOCKET NUMBER: 00786/287002

TELECOMMUNICATION INFORMATION:

TELEPHONE: (617) 542-5070
                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/683,262
FILING DATE: 18-JUL-1996
                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 46:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 007
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
TELEFAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/09/818,066
PILING DATE: 27-Mar-2001
CLASSIFICATION: cUnknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10; Conservative
                                     TELEFAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 08/683,262 FILING DATE: 18-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 174 amino acids
: 200154
SEQ ID NO: 48:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 54; DB 10;
Pred. No. 0.006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        00786/287002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
US-09-818-066-56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-818-066-56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-818-066-48
                                                                                    Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 56, Application US/09818066 Patent No. US20020032307A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 10; Conserv
                                                                    Matches
                                                                                                    Query Match
                                                                                                                                                                                                                                    TELEX: 200154
INFORMATION FOR SEQ ID NO: 56:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                   SOFTWARE SALED. F. C. LOW, Wersion #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: cUnknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/683,262
FILING DATE: 19-JUL-1996
ATTORNEY/AGENT INFORMATION:
NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00786/287002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160 PISSIFSRTGDP 171
                                                                                  Local Similarity
                   1 PLSSIFSRIGD 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                               MOLECULE TYPE: protein SEQ ID NO: 56:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 48:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
PLSSIFSRIGD 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
                                                                  11;
                                                                                                                                                                                       TOPOLOGY: linear
                                                                                                                                                                                                     TYPE: amino acid
                                                                                                                                                                                                                    LENGTH: 174 amino acids
                                                                                                                                                                                                                                                                                        TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: U.S.A.
ZIP: 02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 174 amino acids
TYPE: amino acid
                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                      (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88.5%;
                                                                               88.5%;
100.0%;
                                                                0
                                                              Score 54; DB 10;
Pred. No. 0.006;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 54; DB 10;
Pred. No. 0.006;
                                                                                               Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 174;
                                                              Indels
                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

RESULT 8 US-09-247-890-10 ; Sequence 10, Application US/09247890

Publication No.

US20020198162A1

INFORMATION:

```
문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Maxygen, Inc.
TITLE OF INVENTION: Antigen Library Immunization
FILE REFERENCE: 018097-028710US
CURRENT APPLICATION NUMBER: US/09/247,890
CURRENT FILING DATE: 1999-02-10
EARLIER APPLICATION NUMBER: US 60/074,294
EARLIER FILING DATE: 1998-02-11
EARLIER FILING DATE: 1998-02-11
EARLIER FILING DATE: 1998-02-13
MUMBER OF SEQ 1D NOS: 25
SOFTWARE: Patentin Ver: 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-209-264-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: PRT
; ORGANISM: Hepatitis B virus
US-09-247-890-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 10
LENGTH: 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/10209264
Publication No. US20030003111A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 88.5%;
Best Local Similarity 83.3%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Punnonen, Juha
APPLICANT: Bass, Steven H.
APPLICANT: Whalen, Robert Gerald
APPLICANT: Howard, Russell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Stemmer, Willem P.C.
               TELEPHONE: (212) 708: INFORMATION FOR SEQ ID NO: 3: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41 ÞISSIFSRTGDÞ 52
                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/SG98/00046
APPLICATION NUMBER: PCT/SG98/00046
PILING DATE: 19-JAN-1998
ATTORNEY/AGENT INFORMATION:
NAME: Mass, Clifford J.
REGISTRATION NUMBER: 30,086
REFERENCE/DOCKET NUMBER: U-013109-7
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      μ
                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PLOPPY disk

COMPUTER: PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhao, Yi
Chen, Wei Ning
TITLE OF INVENTION: A MUTANT HUMAN HEPATITIS B VIRAL STRAIN AND
USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Oon, Chong Jin
Lim, Gek Keow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/10/209,264 FILING DATE: 31-Jul-2002 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Ladas & Parry
STREET: 26 West 61 Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: USA
LENGTH: 400 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10023
                                                               708-1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 54; DB 9
Pred. No. 0.01;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
TOPOLOGY: Inear;

MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 50:
US-09-818-066-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-209-264-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-818-066-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 88.5%;
Best Local Similarity 83.3%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 50, Application upatient No. US20020032307A1
GENERAL INFORMATION:
                                                                 Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                             TELEX: 200154
INFORMATION FOR SEQ ID NO: 50:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |:||||| |||
160 PISSIFSRTGDP 171
161 ISSIFSRÍGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 PLSSIFSRIGDP 12
                                2 LSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: single TOPOLOGY: linear SEQUENCE DESCRIPTION: SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/683,262
FILING DATE: 18-JUL-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                    NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00786/287002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/09/818,066 FILING DATE: 27-Mar-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: U.S.A.
ZIP: 02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                            LENGTH: 174 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                 TELEFAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                  TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09818066
                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         225 Franklin
                                                                                     85.2%;
                                                                   Score 52; DB 10 pred. No. 0.014; 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 54; DB 9;
Pred. No. 0.015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                         DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Indels
                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 400
                                                                                                           Length 174;
                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0:
                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                          0
```

US-09-818-066-58
, Sequence 58, Application US/09818066
; Patent No. US20020032307A1
; GENERAL INFORMATION:

RESULT 11

```
RESULT 12
US-09-818-066-53
US-09-818-066-53
; Sequence 53, Application US/09818066
; Patent No. US20020032307A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

SEQUENCE DESCRIPTION: SEQ ID NO: 58:
US-09-818-066-58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 10; Conserv
COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIAN Release #1.0, Version #1.30
CURRENT APPLICATION NATA:
APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: CUnknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEX: 200154
INFORMATION FOR SEQ ID NO: 58:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161 ISSIFSRIGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 LSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 02110-2804

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/818,066

FILING DATE: 27-Mar-2001
                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                    APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,8
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/683,262
FILING DATE: 18-JUL-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
                                                                                                                                                                                                                                     STATE: Massachusetts
                                                                                                                                                                                                                                                            CITY: Boston
                                                                                                                                                                                                ZIP: 02110-2804
                                                                                                                                                                                                                                                                           STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENGTH: 174 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3: (617) 542-50
(617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 52; DB 10; Length 174; Pred. No. 0.014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31,819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               00786/287002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
US-09-818-066-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 53:
US-09-818-066-53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-818-066-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 45, Application U Patent No. US20020032307A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 81.8
Matches 9; Conservative
                                                                                                                                INFORMATION FOR SEQ ID NO: 45:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: 200154
INFORMATION FOR SEQ ID NO: 53:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161 ISSIFTRIGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 LSSIFSRIGDP 12
                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 00786/287002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/818,066 FILING DATE: 27-Mar-2001 CLASSIFICATION: <UNknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
COMPUTER: IEM PC-DOS/MS-DOS
            MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO: 45:
                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: (617) 542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                    LENGTH: 174 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08/683,262 FILING DATE: 18-JUL-1996
                                                                                                                                                                        TELEFAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/683,262 FILING DATE: 18-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09818066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENGTH: 174 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   225 Franklin Street
                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 49; DB 10;
Pred. No. 0.049;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   00786/287002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

Query Match

75.4%; Score 46;

DB 10;

Length 174;

```
RESULT 14
US-09-818-066-47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-818-066-47
                                                                                                                                                                                          US-09-818-066-37
                                                                                                                                                                                                            RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 47, Application US/09818066
Patent No. US20020032307A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 75.0%;
Matches 9; Conservative
              Sequence 37, Application US/09818066
Patent No. US20020032307A1
GENERAL INFORMATION:
APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 75.0
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (617) 542-8906
TELEX: 200154
INFORMATION FOR SEQ ID NO: 47:
SEQUENCE CHARACTERISTICS:
LENGTH: 174 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                160 PIŚŚISŚRTGDP 171
                                                                                                                                                                                                                                                                    |:||| || ||
160 PISSISSRTGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                            1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC:DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/683,262 FILING DATE: 18-JUL-1996 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
ADDRESSEE: Pish & Richardson
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 47:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: Boston
STATE: Massachusetts
COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00786/287002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (617) 542-5070
CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    02110-2804
                                                                                                                                                                                                                                                                                                                                                                  75.4%; Score 46; DB 1
75.0%; Pred. No. 0.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 0.18;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                    DB 10; Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                  Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                    <u>..</u>
```

밁

0;

```
Search completed: February
Job time : 0.439024 secs
                                                                                                                                                                                                                                                          US-09-818-066-37
                                                                                                                                                                 Query Match 72.1%;
Best Local Similarity 81.8%;
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                             TELEX: 200154
INFORMATION FOR SEQ ID NO: 37:
SEQUENCE CHARACTERISTICS:
                                                                                    161 IŚŚISŚRIGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Fraser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00'
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
TELEFAX: (617) 542-8906
                                                                                                                            2 LSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PATENTIN Release #1.0, 1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/818,066
FILING DATE: 27-Mar-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 02110-2804
COMPUTER READABLE FORM:
COMPUTER: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/683,262
FILING DATE: 18-JUL-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                         MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 37:
                                                                                                                                                                                                                                                                                                                LENGTH: 174 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: Massachusetts
                       3, 2003, 09:35:29
                                                                                                                                                                       1; Mismatches
                                                                                                                                                                                             Score 44; DB 10; Length 174; Pred. No. 0.41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31,819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            00786/287002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Version #1.30
                                                                                                                                                                           Indels
                                                                                                                                                                           ٥,
                                                                                                                                                                           Gaps
```

```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein -
                                 Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being preand is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       s seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length: 0
length: 20000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pending Patents AA New:*

1: /cgn2_6/ptodata/1/paa/PCT NEW COMB.pep:*

2: /cgn2_6/ptodata/1/paa/US06_NEW COMB.pep:*

3: /cgn2_6/ptodata/1/paa/US07_NEW COMB.pep:*

4: /cgn2_6/ptodata/1/paa/US07_NEW COMB.pep:*

5: /cgn2_6/ptodata/1/paa/US09_NEW COMB.pep:*

6: /cgn2_6/ptodata/1/paa/US09_NEW COMB.pep:*

7: /cgn2_6/ptodata/1/paa/US00_NEW COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match
                             BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        404799 seqs, 80919614 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             February 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2003, 09:24:27; Search time 0.982578 Seconds
(Without alignments)
988.252 Million cell updates/sec
           US-10-211-088-302
US-10-326-908-19
US-10-326-908-19
US-10-326-908-11
PCT-US02-32263-46
US-10-287-994-46
PCT-US02-40225-314
US-10-320-797-3144
US-10-320-797-3144
US-10-092-411A-4053
PCT-US02-32727-2247
PCT-US02-32727-1919
US-10-057-498-2247
PCT-US02-32727-9192
US-10-057-498-23079
US-10-057-498-23079
US-10-218-140-3758
US-09-724-676-70237
US-09-724-676-70238
US-09-724-676-70238
PCT-US02-3321-5
PCT-US02-3321-5
PCT-US02-3321-5
PCT-US02-3-321-3
PCT-US02-3-321-5
PCT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARIES
Sequence 302 Apple Sequence 21, Appl Sequence 21, Appl Sequence 46, Appl Sequence 23, Appl Sequence 3144, Appl Sequence 3144, Appl Sequence 2247, Appl Sequence 1912, Appl Sequence 2947, Appl Sequence 2947, Appl Sequence 29079, Appl Sequence 23079, Appl Sequence 23079, Appl Sequence 70237, Appl Sequence 70237, Appl Sequence 70238, Appli Sequence 5, Appli Sequence 5, Appli Sequence 70230, Appli 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-326-908-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-211-088-302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               l Similarity
12; Conser
```

45	2		2 (42	41	40	9	3 6		ى ر 1 م		بر س	ω.	L.	2	3 L	2	30	23) i	28	27
(J)	Ü	1 0	J (י ת	ω 5	35	35	5	, _U	, L	ינ	ы П (7	i.i	C.	1 (J	ա 5	45	, (n N	Li U
57.4	57.4	0/.4	1	L 1	57.4	57.4	57.4	57.4	57.4	1 / .	1	n (77 4	57.4	57.4	0 7 . #	1	57.4	57.4		57.	57.4
1075	1075	T099	1009	1000	1069	1069	1047	1047	1047	1047	100		1017	741	741	0 9 0		767	696	0 7 0	000	687
Uī	U	U	u	n (л	ຫ	ហ	ហ	s	· ·	v	, (л	o	_	G	1 (л	v	U	,	u
US-09-724-676-70225	US-09-724-676-70224	US-09-724-676A-70241	US-U9-124-6/6A-70240	TE 00 104 (104 100 10	118-09-724-676-70241	US-09-724-676-70240	US-09-724-676A-70239	US-09-724-676A-70234	US-09-724-676-70239	US-09-724-676-70234	US-U9-724-676A-70223	00-03-724-070-70223	110-00-334 (3) 3000	US-10-057-498-1231	PCT-US02-32727-1231	US-U9-724-676A-70233	7070/180/01/207	118-09-704-6763-70000	US-09-724-676-70233	05-09-724-676-70232		US-09-724-676A-70231
Sequence	Sequence	Sequence	Sequence	sequence	מיקעניים	Sections	Semience	Sequence	Sequence	Sequence	Sequence	Sequence	o chaome	Seminano	Seguence	Sequence	sequence	0.0400000	Sections	Sequence	Sodreme	0000000
70225,	70224	70241.	70240,	70241,	10210,	70240,	70234	70234	70239	70234,	70223,	70223,	•	•		70233.	70232,	•	7022.	70232,	,10231,	1000
> ;	×	×	Þ	Þ	>	,	٠:	> :	➤.	⋗	×	Þ	έ	1	3	×	Þ)	>	Þ	>	,

ALIGNMENTS

```
Sequence 19, Application US/10326908

GENERAL INFORMATION:
APPLICANT: Christopher JONES
APPLICANT: Christopher JONES
APPLICANT: Gill DOUCE
APPLICANT: Mark PAGE
TITLE OF INVENTION. Designing Immunogens
FILE REFERENCE: 117-433 / N78027D
CURRENT APPLICATION NUMBER: US/10/326,908
CURRENT FILING DATE: 2002-12-23
PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR FILING DATE: 2002-04-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 1
US-10-211-088-302
US-10-211-088-302
; Sequence 302, Application US/10211088
; GENERAL INFORMATION:
   APPLICANT: Bright, Gary R.
   APPLICANT: Premkumar, D. David
   APPLICANT: Chen, Yih-Tai
   TITLE OF INVENTION: Novel Fusion Proteins And Assays For Molecular Binding
   FILE REFERENCE: 01-1022-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn version 3.1
SEQ ID NO 302
LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/211,088
CURRENT FILING DATE: 2002-10-15
PRIOR APPLICATION NUMBER: 60/309,395
PRIOR FILING DATE: 2001-08-01
PRIOR APPLICATION NUMBER: 60/341,589
PRIOR FILING DATE: 2001-12-13
NUMBER OF SEQ ID NOS: 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT ORGANISM: Artificial sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: Protein-derived transport
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 PLSSIFSRIGDP 12
     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 61; DB 6; 1
100.0%; Pred. No. 4.6e-05; Mismatches 0;
PCT/GB00/03857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 6; Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

```
PRIOR FILING DATE: 2000-10-06

PRIOR APPLICATION NUMBER: GB 0007789.1

PRIOR PILING DATE: 2000-03-30

PRIOR APPLICATION NUMBER: GB 9923902.2

PRIOR FILING DATE: 1999-10-08

NUMBER OF SEQ ID NOS: 30

SOFTWARE: MS WORD

SEQ ID NO 19

LENGTH: 64

TYPE: PRI
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: Synthetic peptide immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION UNMBER: US/10/326,908
CURRENT FILING DATE: 2002-12-23
PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR FILING DATE: 2002-04-08
PRIOR APPLICATION NUMBER: PCT/GB00/03857
PRIOR APPLICATION NUMBER: GD 0007789.1
PRIOR APPLICATION NUMBER: GB 0007789.1
PRIOR FILING DATE: 2000-03-30
PRIOR FILING DATE: 2000-03-30
PRIOR FILING DATE: 1999-10-08
NUMBER OF SEQ ID NOS: 30
SOFTMARE: MS WOR'D
SEQ ID NO 21
LENGTH: 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-326-908-19
                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                   ; OTHER INFORMATION: synthetic peptide immunogen US-10-326-908-21
                                                                                                                                         RESULT 4
PCT-US02-32263-46
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 21, Applica GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -10-326-908-21
                                                                                       Sequence 46, Application PC/TUS0232263
GENERAL INFORMATION:
APPLICANT: Neose Technologies, Inc.
                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Christopher JONES APPLICANT: Andrew BACON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Designing Immunogens FILE REFERENCE: 117-433 / N78027D
                                                                        APPLICANT:
                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: Artificial Sequence
PEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48 ÞISSÍFSRÍGDÞ 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                48 PIŚŚIFŚRIGDP 59
                                                                                                                                                                                                                                      1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                   11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/10326908
Bayer, Robert
Bowe, Caryn
Hakes, David
                                                  Zopf, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                        DeFrees,
                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96.7%;
                                                                                                                                                                                                                                                                                                     96.7%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 59; DB 6;
Pred. No. 0.00061
1; Mismatches
                                                                                                                                                                                                                                                                                                       Score 59; DB 6;
Pred. No. 0.00064;
                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 6; Length 64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                        Length 67;
                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                            0
```

```
PRIOR APPLICATION NUMBER: US 60/391,777
PRIOR FILING DATE: 2002-06-25
PRIOR APPLICATION NUMBER: US 60/396,594
PRIOR FILING DATE: 2002-07-17
PRIOR APPLICATION NUMBER: US 60/404,249
PRIOR APPLICATION NUMBER: US 60/407,527
PRIOR FILING DATE: 2002-08-28
NUMBER OF SEQ ID NOS: 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 60/328,523
PRIOR FILING DATE: 2001-10-10
PRIOR APPLICATION NUMBER: US 60/344,692
PRIOR FILING DATE: 2001-10-19
PRIOR PRICATION NUMBER: US 60/334,233
PRIOR APPLICATION NUMBER: US 60/334,301
PRIOR PRILING DATE: 2001-11-08
PRIOR APPLICATION NUMBER: US 60/334,301
PRIOR PRILING DATE: 2001-11-08
PRIOR PRILING DATE: 2001-11-08
PRIOR PRILING DATE: 2001-61-07
PRIOR PRILING DATE: 2001-61-07
PRIOR PRILING DATE: 2001-60-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-287-994-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
                                                                        PRIOR APPLICATION NUMBER: US 60/391,777
PRIOR FILING DATE: 2002-06-25
PRIOR APPLICATION NUMBER: US 60/396,594
PRIOR FILING DATE: 2002-07-17
PRIOR APPLICATION NUMBER: US 60/404,249
PRIOR APPLICATION NUMBER: US 60/407,527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn version 3.1 SEQ ID NO 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 46, Application US/10287994 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: REMODELING AND GLYCOCONJUGATION OF PEPTIDES FILE REFERENCE: 040853-01-5050WO CURRENT APPLICATION NUMBER: PCT/US02/32263 CURRENT FILING DATE: 2002-10-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
NUMBER OF SEQ ID NOS: 62
SOFTWARE: PatentIn version 3.1
SEQ ID NO 46
                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/328,523
PRIOR FILING DATE: 2001-10-10
PRIOR APPLICATION NUMBER: US 60/344,692
PRIOR FILING DATE: 2001-10-19
PRIOR APPLICATION NUMBER: US 60/387,292
PRIOR FILING DATE: 2002-06-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Neose Technologies, APPLICANT: Defrees, Shawn
                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: REMODELING AND GLYCOCONJUGATION OF PEPTIDES FILE REFERENCE: 040853-01-5052-00 CURRENT APPLICATION NUMBER: US/10/287,994 CURRENT FILING DATE: 2002-11-05 CURRENT FILING DATE: 2002-11-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   160 ÞISSIFSRTGDÞ 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chen, Xi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hakes, Da
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bayer, Robert
Bowe, Caryn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88.5%;

    Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 54; DB 1;
Pred. No. 0.036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1, Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

```
APPLICANT: HALVL, APPLICANT: Paul, Ralph;
APPLICANT: Cudmore, Sally
APPLICANT: Cudmore, Sally
APPLICANT: O'MAhony, Daniel J.
FITLE OF INVENTION: LIPID-COMPRISING DRUG DELIVERY COMPLEXES
FITTLE OF INVENTION: AND METHODS FOR THEIR PRODUCTION
FILE REFERENCE: 226272005340
CURRENT APPLICATION NUMBER: PCT/US02/13609
CURRENT APPLICATION NUMBER: US 60/287,786
PRIOR APPLICATION NUMBER: US 60/287,786
PRIOR FILING DATE: 2001-04-30
PRIOR FILING DATE: 2001-04-30
INUMBER OF SEQ ID NOS: 45
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 23
LENGTH: 10
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
COTHER INFORMATION: Synthetic Construct
PCT-US02-13609-23
                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 7
PCT-US02-40225-3144

Sequence 3144, Application PC/TUS0240225
GENERAL INFORMATION:
                                                               PCT-US02-40225-3144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: PRT
; ORGANISM: Hep
US-10-287-994-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PCT-US02-13609-23
                                                                                                         APPLICANT: Elitra Pharmaceuticals, Inc.
APPLICANT: Eroshkin, Alexey M.
APPLICANT: Eroshkin, Alexey M.
APPLICANT: Zamudio, Carlos
TITLE OF INVENTION: IDENTIFICATION OF ESSENTIAL GENES OF CRYPTOCCCCUS NEOFORMANS AND
TITLE OF INVENTION: METHODS OF USB
FILE REFERENCE: 10182-021-228
CURRENT APPLICATION NUMBER: 2002-12-17
PRIOR APPLICATION NUMBER: 2002-12-17
PRIOR APPLICATION NUMBER: 60/341,261
PRIOR APPLICATION NUMBER: 60/341,261
PRIOR PILING DATE: 2001-12-17
NUMBER OF SEQ ID NOS: 3361
SOFTWARE: Patentin version 3.1
SOFTWARE: Patentin version 3.1
LEUGTH: 399
TWORE: No. 3144
LEUGTH: 399
  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 83. Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 23, Application PC/TUS0213609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Targeted Genetics Corporation APPLICANT: Emerald Gene Systems, LTD APPLICANT: Harvie, Pierrot
                                                                              ORGANISM: Cryptococcus neoformans
                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              160 PISSIFSRTGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIG 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 PLSSIFSRIG 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88.5%;
83.3%;
  63.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       78.7%; Score 48;
100.0%; Pred. No.
tive 0; Mismatc
Score 39;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 54; DB 6;
Pred. No. 0.036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
DB 1;
25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1; Length 10; 0.011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
CURRENT APPLICATION NUMBER: US/10/320,797
CURRENT FILING DATE: 2002-12-16
PRIOR APPLICATION NUMBER: 60/341,261
PRIOR FILING DATE: 2001-12-17
NUMBER OF SEQ ID NOS: 3361
SOFTWARE: Patentin version 3.1
SEQ ID NO 3144
LENGTH: 399
TYPE: PRT
ORGANISM: Cryptococcus neoformans
US-10-320-797-3144
       밁
                                      Ş
                                                                                                                                           ; TYPE: PRT
; ORGANISM: Staphylococcus epidermidis
US-10-092-411A-4053
                                                                                                                                                                                                                                                     FILE REFERENCE: 032796-101
CURRENT APPLICATION NUMBER: US/10/092,411A
CURRENT FILING DATE: 2002-03-07
PRIOR APPLICATION NUMBER: US 09/134,001
PRIOR FILING DATE: 1998-08-13
PRIOR FILING DATE: 1998-08-13
PRIOR APPLICATION NUMBER: US 60/064,964
PRIOR FILING DATE: 1997-11-08
PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR FILING DATE: 1997-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-092-411A-4053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   당
                                            Query Match
Best Local Similarity 60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-320-797-3144
                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 5676
SEQ ID NO 4053
LENGTH: 533
                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 4053, Application US/10092411A
GENERAL INFORMATION:
APPLICANT: Lynn Doucette-Stamm et al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3144, Application US/10320797
GENERAL INFORMATION:
APPLICANT: Eroshkin, Alexey M.
APPLICANT: Zamudio, Carlos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: IDENTIFICATION OF ESSENTIAL GENES OF CRYPTOCOCCUS NEOFORMANS TITLE OF INVENTION: METHODS OF USE FILE REFERENCE: 10182-021-999
1 PLSSIFSRIG 10
||:||::|:|
98 PLTSIYNRLG 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          213 LSAVPSRIGE 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 LSSIFSRIGD 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LSAVFSRIGE 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LSSIFSRIGD 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                        60.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63.9%;
                                                                                        Score 37;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 39;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>υ</u>
                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                         DB 6; Length 533;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 399;
                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

RESULT 10 PCT-US02-32727-2247

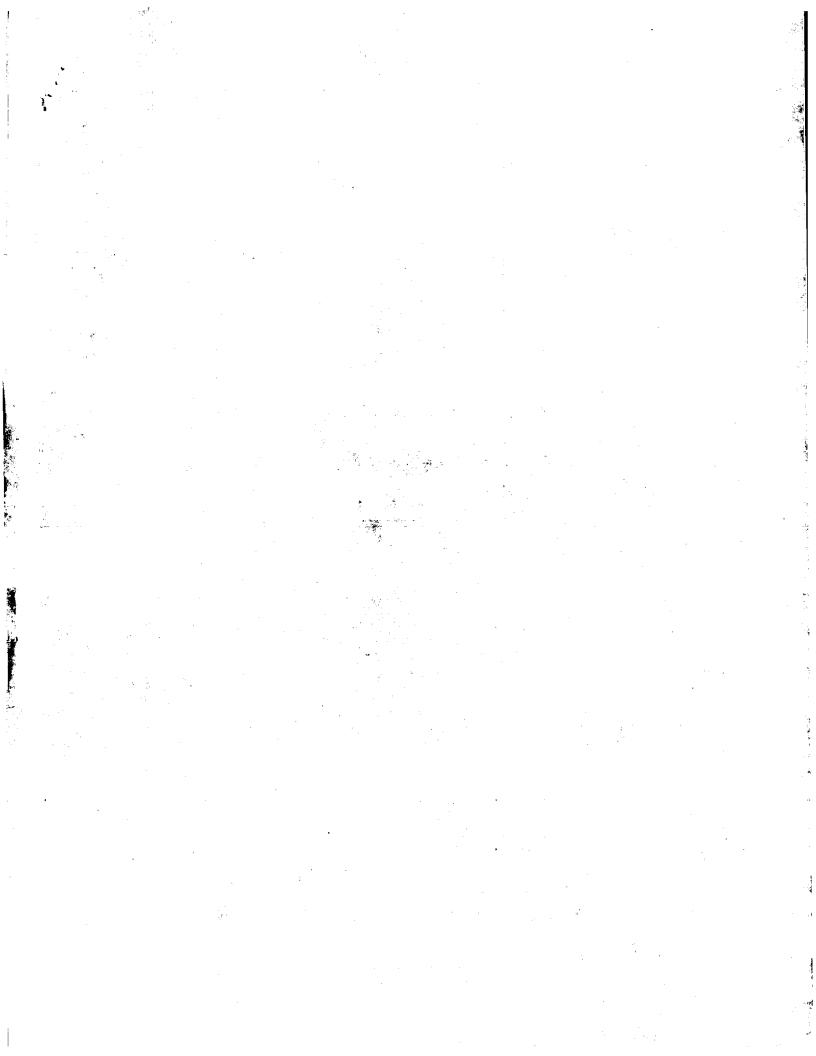
Sequence 2247, Application PC/TUS0232727 GENERAL INFORMATION:

```
GENERAL INFORMATION:
APPLICANT: Micham, Jennifer
APPLICANT: Skeiky, Yasir
APPLICANT: Skeiky, Yasir
APPLICANT: Persing, David
TITLE OF INVENTION: Compositions and Methods for the
FILE REFERENCE: 210121.514
CURRENT APPLICATION UMBER: US/10/057,498
CURRENT FILING DATE: 2001-04-20
NUMBER OF SEQ ID NOS: 29212
SEQ ID NO 2247
LENGTH: 53
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 2247
LENGTH: 53
TYPE: PRT
ORGANISM: Propioni acnes
PCT-US02-32727-2247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-057-498-2247
                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Propioni acnes
US-10-057-498-2247
                                                                                                                                                                   RESULT 12
PCT-US02-32727-19192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                              Best Local Similarity Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                      Sequence 19192, Application PC/TUS0232727
                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Douglass, John
TITLE OF INVENTION: Compositions and Methods
FILE REFERENCE: 210121.514C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                        APPLICANT: Mitcham, Jennifer
APPLICANT: Skeiky, Yasir
APPLICANT: Persing, David
APPLICANT: Bhatia, Ajay
APPLICANT: Maisonneuve, Jean Francois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity tes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14 SSLHSRIGSP 23
                                                                                                                                                                                                                                  14 SSLHSRIGSP 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 SSIFSRIGDP 12
                                                                                                                                                                                                                                                                3 SSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2247, Application US/10057498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mitcham, Jennifer
Skeiky, Yasir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wang, Siqing
Jen, Shyian
Lodes, Michael
Wang, Sayian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Carter, Darrick
Barth, Brenda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Maisonneuve, Jean
Zhang, Yanni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Persing, Davi
Bhatia, Ajay
                          Zhang, Yanni
Wang, Siqing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57.4%;
70.0%;
                                                                                                                                                                                                                                                                                                              57.4%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 35; DB
Pred. No. 18;
1; Mismatches
                                                                                                                                                                                                                                                                                                              Score 35;
Pred. No.
                                                                                                                                                                                                                                                                                                                  DB 6;
18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for the Therapy and Diagnosis of Acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 53;
                                                                                                                                                                                                                                                                                                                                 Length 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the Therapy and Diagnosis of Acnes
                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                   0
```

```
APPLICANT: Douglass John
TITLE OF INVENTION: Compositions and Methods for
FILE REFERENCE: 2101121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 19192
SEQ ID NO 19192
CENGTH: 70
TYPE: PRT
ORGANISM: Propioni acnes
PCT-US02-32727-19192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Tarches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-057-498-19192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Propioni acnes
US-10-057-498-19192
                                                                                                                                                                                                                                                                                PCT-US02-32727-23079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/057,498
CURRENT FILING DATE: 2001-04-20
NUMBER OF SEQ ID NOS: 29212
SEQ ID NO 19192
LENGTH: 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 19192, Application US/10057498
GENERAL INFORMATION:
APPLICANT: Mitcham, Jennifer
APPLICANT: Skeiky, Yasir
APPLICANT: Persing, David
TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes V.
FILE REFERENCE: 210121.514
                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                               Sequence 23079, Application PC/TUS0232727 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                           APPLICANT:
                                                                                          APPLICANT:
                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                  APPLICANT: Mitcham, Jennifer
                                             APPLICANT:
                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7 SIFSRFGKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4 SIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                7 SIFSRFGKP 15
                                                                                                                                                                                                                                                                                                                                                                            SIFSRIGDP 12
C: Douglass, John
INVENTION: Compositions
RENCE: 210121.514C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Benson, Darin
Jones, Robert
Carter, Darrick
Barth, Brenda
                                                                        Zhang, Yanni
Wang, Siqing
Jen, Shyian
Lodes, Michael
Benson, Darin
Jones, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lodes, Michael
                                                                                                                                                                  Persing, David
Bhatia, Ajay
Maisonneuve, Jean
                                            Carter, Darrick
Barth, Brenda
                                                                                                                                                                                                                     Skeiky, Yasir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57.4%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                          57.4%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 35;
Pred. No.
                                                                                                                                                                          Francois
                                                                                                                                                                                                                                                                                                                                                                                                                           Score 35; DB
Pred. No. 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
              and Methods for the Therapy and Diagnosis of Acnes Vi
                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for the Therapy and Diagnosis of Acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۶
```

Ĺ

```
RESULT 15
US-10-057-498-23079 Application US/10057498
Sequence 23079, Application US/10057498
GENERAL INFORMATION:
APPLICANT: Mitcham, Jennifer
APPLICANT: Skeiky, Yasir
APPLICANT: Persing, David
TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes V
FILLE REFERENCE: 210121.514
CURRENT APPLICATION NUMBER: US/10/057,498
CURRENT FILING DATE: 2001-04-20
UNMBER OF SEQ ID NOS: 29212
SEQ ID NO 23079
LENGTH: 144
TYPE: PRT
ORGANISM: Propioni acnes
Search completed: February 3, 2003, 09:35:01 Job time: 1.98258 secs
                                                                                         ₽
                                                                                                                              ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 23079
LENGTH: 144
TYPE: PRT
ORGANISM: Propioni acnes
PCT-US02-32727-23079
                                                                                                                                                       Query Match 57.4%; Score 35; DB 6; Length 144; Best Local Similarity 45.5%; Pred. No. 51; Matches 5; Conservative 4; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 57.4%; Score 35; DB 1; Length 144; Best Local Similarity 45.5%; Pred. No. 51; Matches 5; Conservative 4; Mismatches 2; Indels
                                                                                 2 LSSIFSRIGDP 12
|:::| :|||
24 LAAVFKSLGDP 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 LSSIFSRIGDP 12
|:::| :|||
24 LAAVFKSLGDP 34
                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```



ھ ابھ

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                   Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                           Database
                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 10
                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - protein search, using sw model
 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                Score
                                                                                                                                                                                                                                                                                                                                                  seq length: 0
seq length: 2000000000
 Query
Match
BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                    283224 seqs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                  Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 February 3,
                                                                                                                                                                                                                                                                                                         PIR_73:*
                                                                                                                                                                                                                                                                                                                       Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                                             pir1:*
pir2:*
pir3:*
pir4:*
                                                                                                                                                                                                               Length
BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.3
(c) 1993 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                2003, 09:21:57; Search time 0.794425 Seconds (without alignments)
1452.136 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                              100%
                                                                                                                                 SAVLBH
SAVLAJ
SAVLA1
S47407
S32202
T13474
T13469
                                               SAVLCP
S41871
                                                                                 $35528
$43492
$67506
$41870
$20753
                                                                                                                                                                                                               Ħ
                                                                                                                                                                                                                                    SUMMARIES
                hypothetical prote hypothetical large hypothetical prote hypothetical prote hypothetical prote
                                             surface antigen .
                                                                               surface antigen -
surface antigen -
                                                                  hypothetical
                                                                                                   surface antigen -
surface antigen -
                                                            ubiquinone biosynt
                                                                        conserved hypothet
                                                                                                                         surface antigen -
                                                                                                                               large surface anti
large surface anti
large surface anti
                                                                                                                                                     surface antigen -
                                                                                                                                                          large surface anti
                                                                                                                                                                                                             Description
                                                                                                                                                                                surface antigen -
                                                                                                                                                                                             surface antigen -
                                                   large surface anti
                                                                                             large surface anti
                                                                                                                  large surface
                                                                                                                                                                          large surface
                                                                                                                                                                                       large surface anti
    surface ant:
                                                                  prote
                                                                                                                  anti
```

45	44	43	42	41	40	39	8	37	6	ω U	ω A	i (si Cu) (s	յ և Դ	30
36	36.5	37	37	37	37	37	37	37	37	37	37	37	38	i de	38
59.0	59.8	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	62.3	62.3	62.3
230	335	1037	582	533	495	422	333	333	229	229	134	134	1786	603	537
N	N	N	N	_	N	N	N	N	N	N	N	N	_	N	N
A75260	G86326	E84723	D84362	S74401	T21115	150516	F85804	A90956	AI2587	A97370	G82477	A82455	H71527	H69121	S67434
hypothetical prote	F1 801	٠,	_,		hypothetical prote	retinoid X recento	integrage for prop	probable integrase	conserved hypothet	_	_	hypothetical prote	probable excinucle	hypothetical prote	probable sterol O-

ALIGNMENTS

(midc

```
large surface antigen - hepatitis B virus (subtype ayw)
N/Contains: major surface antigen; middle surface antigen
C/Species: hepatitis B virus, HBV
C/Date: 18-Dec-1981 #sequence revision 18-Dec-1981 #text_change 07-May-1999
C/Accession: A03703; JQ2064; PQ0551
R/Galibert, F.; Mandart, B.; Fitoussi, F.; Tiollais, P.; Charnay, P.
Nature 281, 646-650, 1979
A/Title: Nucleotide sequence of the hepatitis B virus genome (subtype ayw) i
A/Reference number: A93214; MUID:81012091; PMID:399327
A/Accession: A03703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Superfamily: hepatitis B virus surface antigen
C;Keywords: surface antigen
C;Keywords: surface antigen
F;1-378/Product: surface antigen pre-S1 (large envelope protein) #status predicted <PS1>F;1-108/Domain: pre-S1 domain #status predicted <PRE1>F;109-378/Product: surface antigen pre-S2 (middle envelope protein) #status predicted <PE[F;109-163/Domain: pre-S2 domain #status predicted <PRE2>F;109-163/Domain: pre-S2 domain #status predicted <PRE2>F;164-378/Product: surface antigen S (small envelope protein) #status predicted <PSD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                            SAVLAH
                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:X77309; NID:g452611; PIDN:CAA54515.1; PID:g452612
A;Experimental source: subtype ayw, patient A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               surface antigen - hepatitis B virus (subtype ayw, patient A) (fragment)
N;Alternate names: envelope protein; HBs antigen
N;Contains: surface antigen pre-S1
C;Species: hepatitis B virus, HBV
A;Varriety: subtype ayw, patient A
C;Date: 06-Jan-1995 ayw, patient A
C;Accession: S41869
C;Accession: S41869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Gene: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     submitted to the EMBL Data Library, January 1994
A;Description: Sequence analysis of HBV genomes isolated from patients with HBsAg chronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-378 < LAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: S41869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Reference number: S41869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M.E.; Mazzoleni, A.P.; Balestrieri, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                             PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>۰</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 61; DB 2;
Pred. No. 0.0011;
Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 378;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

A; Molecule type: DNA A; Residues: 1-389 <GAL> A; Cross-references: GB:

GB:J02203

in

ы coli.

```
K;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A.M.; Mushahwar, I.K.; Magnius, J. Gen. Virol. 74, 1341-1348, 1993
A;Title: Genetic relatedness of hepatitis B viral strains of diverse geographical origin A;Reference number: JQ2044; MUID:93329382; PMID:8336122
A;Accession: JQ2064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Experimental source: genogroup D, subtype ayw3
R;Norder, H.; Courouce, A.M.; Magnius, L.O.
J. Gen. Virol. 73, 3141-3145, 1992
A;Title: Molecular basis of hepatitis B virus serotype variations within A;Reference number: PQ0453; MUID:93107848; PMID:1469353
A;Accession: PQ0591
                                                                                                                                                                                                                                                                                                                               A;Gene: S
C;Superfamily: hepatitis B virus surface antige...
C;Superfamily: hepatitis B virus surface antige...
C;Keywords: surface antigen
F;1-389/Product: surface antigen pre-S1 (large envelope protein) #status predicted <PSD>
F;164-389/Product: surface antigen S (small envelope protein) #status predicted <PSD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Residues: 264-343 <NO2>
A; Experimental source: su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  submitted to the EMBL Data Library, March 1992
A;Description: Sequence analysis of HBV genomes isolated from patients wi A;Reference number: S20745
A;Accession: S20749
A;Molecule type: DNA
A;Residues: 1-389 <LAI>
A;Cross-references: EMBL:X65258; NID:g59434; PIDN:CAA46353.1; PID:g59435
A;Gross-references: subtype ayw, patient CI
A;Mote: typical methionine for the beginning of pre-S2 domain at position C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            surface antigen - hepatitis B virus (subtype ayw, patient CI)
N,Alternate names: envelope protein; HBs antigen
N,Contains: surface antigen pre-SI (large envelope protein); surface antigen
C;Species: hepatitis B virus, HBV
A;Variety: subtype ayw, patient CI
C;Date: 20-reb-1995 #sequence_revision 01-Nov-1996 #text_change 26-Aug-1999
C;Accession: S20749
R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A.; Melis, A.; Porru, A.
submitted to the EMBL Data Library, March 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Keywords: glycoprotein; surface antigen (gene pre-S2/S) #status predicted F;109-389/Product: middle surface antigen (gene S) #status predicted <MSA>F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>F;4,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Gene: pre-S1/pre-S2/S
C;Superfamily: hepatitis B virus surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A, Molecule type: DNA
A, Residues: 164-389 < NOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C/Genetics:
large surface antigen - hepatitis B virus (subtype ayw, strain pHB320)
N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
                                                                                             RESULT 4
SAVLBH
                                                                                                                                                                                                                                            S
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149
                                                                                                                                                                                                  149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                           Local Similarity
nee 12; Conserv
                                                                                                                                                                                                                                              _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLSSIPSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                subtype ayw3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٥.
                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 61; DB 1;
Pred. No. 0.0012;
); Mismatches 0
                                                                                                                                                                                                                                                                                                Score 61; DB 2;
Pred. No. 0.0012;
Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genomes isolated from patients with HBsAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    at position 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ٥.
                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    four
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ຜ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            is missing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (small
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     negati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                e
E
```

```
A;Note: host Homo sapiens (man)
C;Date: 17-Mar-1987 #sequence revision 17-Mar-1987 #text_change
C;Accession: A03704; PQ0585
R,BiChko, V.; Pushko, P.; Dreilina, D.; Pumpen, P.; Gren, B.
FEBS Lett. 185, 208-212, 1985
A;Title: Subtype ayw variant of hepatitis B virus: DNA primary s
A;Reference number: A05237; MUID:85204397; PMID:3996597
A;Accession: A03704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross references: GB:X02496; NID:g62280; PIDN:CAB4170: R;Norder, H.; Courouce, A.M.; Magnius, L.O.
J. Gen. Virol. 73, 3141-3145, 1992
A;Title: Molecular basis of hepatitis B virus serotype \A;Reference number: PQ0453; MUID:93107848; PMID:1469353
A;Accession: PQ0585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        large surface antigen - hepatitis B virus (subtype adyw)
N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
C;Species: hepatitis B virus, HBV
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 15-Nov-1996
C;Accession: A93217; A03703
R;Pasek, M.; Goto, T.; Gilbert, W.; Zink, B.; Schaller, H.; MacKay, P.; Lead
Nature 282, 575-579, 1979
A;Title: Hepatitis B virus genes and their expression in B. coli.
A;Reference number: A93217; MUID:81012115; PMID:399329
A;Accession: A93217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Keywords: glycoprotein; surface antigen (gene pre-S2/S) #status predicted F;109-389/product: middle surface antigen (gene S) #status predicted <mSA>F;164-389/product: major surface antigen (gene S) #status predicted <mSA>F;4,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Experimental source: sul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: A; Residues: 264-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-389 <BIC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
SAVLAJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;4,112,166/Binding site:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: pre-S1/pre-S2/S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: DNA
A;Residues: 1-389 <PAS>
A;Cross-references: GB:J02202
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
large surface antigen - hepatitis B virus (strain alphal) N;Contains: major surface antigen; middle surface antigen C;Species: hepatitis B virus, HBV
                                                                          RESULT
SAVLA1
                                                                                                                                                                                                                                                                                                                                                            C;Keywords: glycoprotein; surface antigen (gene pre-S2/S) #status predicted F;109-389/product: middle surface antigen (gene S) #status predicted KSA> F;164-389/product: major surface antigen (gene S) #status predicted cMSA> F;4,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Gene: pre-S1/pre-S2/S
C;Superfamily: hepatitis B virus surface antigen
                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Superfamily: hepatitis B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |:|||||||||
149 PISSIFSRIGDP 160
                                                                                                                                                                        149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                 Local Similarity
hes 11; Conservat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 PLSSIFSRIGDP
                                                                                                                                                                                                                    1
                                                                                                                                                                                                                       PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              subtype
                                                                                                                                                                             160
                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96.7%;
91.7%;
                                                                                                                                                                                                                                                                                            96.7%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           virus surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ayw2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 59;
Pred. No.
                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                                                                                                                                                                                                                            Score 59; DB 1;
Pred. No. 0.0028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIDN:CAB41701.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.0028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 389
                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                       Length 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       variations
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:94704321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              structure analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          within
                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Leadbetter,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            four
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            major e
```

G.;

```
A;Gene: 5
A;Introns: 111/3
A;Introns: 111/3
C;Superfamily: hepatitis B virus surface antigen
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: surface antigen
F;1-389/Froduct: surface antigen pre-S1 (large envelope protein) #status predicted <PS:
F;1-108/Domain: pre-S1 domain #status predicted <PRE1>
F;109-389/Froduct: surface antigen pre-S2 (middle envelope protein) #status predicted
F;109-389/Froduct: surface antigen pre-S2 (middle envelope protein) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                   A;Experimental source: subtype ayw4
R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A.M.; Mushahwar, I.K.; Magnius, J. Gen. Virol. 74, 1341-1348, 193
A;Title: Genetic relatedness of hepatitis B viral strains of diverse geographical original processing strains of diverse geographical original process. JQ2044; MUID:93329382; PMID:8336122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Variety: subtype ayw4
C;Date: 23-Nov-1994 #sequence_revision 12-May-1995
C;Accession: S47407; JQ2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            surface antigen - hepatitis B virus (subtype ayw4)
N;Alternate names: envelope protein; HBs antigen
N;Contains: surface antigen pre-51 (large envelope protein); surface antigen pre-52
                                                                                                                                                                                                                                                                     C; Genetics:
                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 164~389 <
                                                                                                                                                                                                                                                                                                                                                                     A; Accession: JQ207:
                                                                                                                                                                                                                                                                                                                                                                                           A; Contents: genogroup
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Residues: 1-389 <PLU>
A;Cross-references: EMBL:Z35716; NID:g527435; PIDN:CAA84788.1;
A;Experimental source: subtype ayw4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     submitted to the EMBL Data Library, August 1994 A; Description: Molecular cloning and sequencing of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Virology 176, 596-603, 1990
A;Title: Active hepatitis B virus replication in the presence A;Reference number: A34773; MUID:90266476; PMID:2345966
A;Accession: B34773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Plucienniczak,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: EMBL:M32138; NID:g329667; PIDN:AAA45502.1; PID:g329669 R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A.M.; Mushahwar, 1 J. Gen. Virol. 74, 1341-1348, 1993 A;Tille: Genetic relatedness of hepatitis B viral strains of diverse geographs A;Reference number: JQ2044; MUID:93329382; PMID:8336122 A;Accession: JQ2082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Reference number: S47404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 164-389 < NOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Introns: 111/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: pre-S1/pre-S2/S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-389 < TON>
                                                                                                                                                                                                                                                                                       Experimental source: subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;Species: hepatitis B virus, HBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;Keywords: glycoprotein; surface antigen
;109-389/Product: middle surface antigen (gene pre-S2/S) #status predicted
;104-389/Product: major surface antigen (gene S) #status predicted <MSA>
;4,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Superfamily: hepatitis B virus surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Status: translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Date: 30-Sep-1991 #sequence_revision 30-Sep-1991 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Experimental source: genogroup
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tong, S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              149 PISSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       h 96.7%;
Similarity 91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                847407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                     <NOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vitvitski, L.; Trepo,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                       ayw3, strain 8950/90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 59; DB 1;
Pred. No. 0.0028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ayw2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strain HBV-alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C WO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of diverse geographical origin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:g527439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genomes of polish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  anti-HBe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 I.K.; Magnius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  is associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        isola
                                                                                                                              <PS1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                             Query Match
Best Local S
Matches 10
```

```
C;Species: hepatitis B virus, .....
A;Variety: isolate 29Y11HCC
C;Date: 13-Aug-1999 #sequence_revision 13-Aug-1999 #text_change :
C;Accession: T13474
R;Takahashi, K.; Akahane, Y.; Hino, K.; Ohta, Y.; Mishiro, S.
Arch. Virol. 143, 2313-2326, 1999
Arch. Virol. 143, 2313-2326, 1999
A;Introns: 123/2
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: glycoprotein; surface antigen
                                                                                                                                                                                                                                                                                                                                                                         N,Alternate names: envelope protein;
N;Contains: major surface antigen; mi
C;Species: hepatitis B virus, HBV
A;Variety: isolate 29Y11HCC
                                                                                                   A; Experimental C; Genetics:
                                                                                                                                                                                                         A;Title: Hepatitis B virus genomic sequence in the circulation A;Reference number: Z17684; MUID:99129050; PMID:9930189 A;Accession: T1374 A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Superfamily: hepatitis B virus surface antigen C;Keywords: surface antigen C;Keywords: surface antigen F;1-389/Product: large surface antigen (gene pre-S1/pre-S2/S) #status predicted <DSL>F;109-389/Product: middle surface antigen (gene pre-S2/S) #status predicted <DSA>F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    large surface antigen - hepatitis B virus (subtype ayw, isolate patient C10 N;Contains: major surface antigen; middle surface antigen C;Specles: hepatitis B virus, HBV A;Variety: subtype ayw, isolate patient C1005 C;Date: 20-Feb-1995 #sequence_revision 06-Dec-1996 #text_change 06-Dec-1996 C;Accession: S32202
                                                                                                                                                              A;Residues: 1-382 <TAK>
                                                                                                                                                                                A; Molecule type: DNA
                                                                                                                                            A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Residues: 1-389 <PRE>
A;Cross-references: EMBL:X72702
A;Experimental source: subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Preisler-Adams, S.; Schlayer, M. submitted to the EMBL Data Library A;Description: Identification and
                                                                                                                                                                                                                                                                                                                                                                                                                                                               large surface antigen - hepatitis B virus (isolate 29Y11HCC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Gene: pre-S1/pre-S2/S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: S32202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F;164-389/Product: surface antigen S (small
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PLSSIFSRIGDP
                                                                                                                                                                                                    preliminary; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PISSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PISSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            832202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                     source: Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S.; Schlayer, M.J.; Peters, T.;
EMBL Data Library, March 1993
                                                                                                            EMBL:AB014388; NID:g3582381; PIDN:BAA32936.1; PID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96.7%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96.7%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ayw, isolate patient
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 59; DB
Pred. No. 0.00
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 59; DB
Pred. No. 0.00
1; Mismatches
                                                                                                                                                                                                    from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence analysis of hepatitis B virus DNA in immunolog
                                                                                                                                                                                                                                                                                                                                                                                                                       n; HBs antigen
middle surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (subtype ayw, isolate patient C1005) surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
0.0028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.0028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         envelope protein) #status predicted <SAG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hettler,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ή
:
                                                                                                                                                                                                                                                                    얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gerok,
                                                                                                                                                                                                                                                                                                                                                     21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                PID: 93582384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                               hepatocellular carcinon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Σ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rasenack,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                              29Y11HCC
```

l Similarity 10; Conserv

Conservative

88.5%;

; Score 54; DB ; Pred. No. 0.02 1; Mismatches

DB

Length 382;

0

Gaps

0

DB 2;

```
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residuss: 1-384 <TAK>
A;Residuss: 1-384 <TAK>
A;Cross-references: EMBL:AB014368; NID:g3551304; PIDN:BAA32864.1; PID:g3551308
A;Experimental source: Japanese patient with hepatocellular carcinoma isolate 09D09HCC
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
A;Variety: isolate 09D09HCC
C;Date: 13-Aug-1999 #sequence_revision 13-Aug-1999 #text_change 21-Jul-2000
C;Accession: T13469
R;Takahashi, K.; Akahane, Y.; Hino, K.; Ohta, Y.; Mishiro, S.
Arch. Virol. 143, 2313-2326, 1998
A;Thus Hepatitis B virus genomic sequence in the circulation of hepatocell
A;Title: Hepatitis B virus genomic sequence in the circulation of hepatocell
A;Reference number: Z17684; MUJD:99129050; PMID:9930189
A;Accession: T13469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
S20745
                                                                                                                                                       A;Cross-references: EMBL:X65257; NID:g59429; PIDN:CAA46349.1; PID:g59430
A;Experimental source: subtype ayw, patient C
C;Genetics:
A;Gene: S
A;Gene: S
C;Superfamily: hepatitis B virus surface antigen
F;1-389/Product: surface antigen pre-S1 (large envelope protein) #status predicted <PS1>F;109-389/Product: surface antigen pre-S2 (middle envelope protein) #status predicted <F;109-164-389/Product: surface antigen S (small envelope protein) #status predicted <PSD>F;164-389/Product: surface antigen S (small envelope protein) #status predicted <PSD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                large surface antigen - hepatitis B virus (isolate 09D09HCC
N/Alternate names: envelope protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N;Contains: Burface antigen pre-S1 (large envelope protein); Burface antige: C;Species: hepatitis B virus, HBV
A;Variety: Bubtype ayw, patient C
C;Date: 20-Feb-1995 #Bequence_revision 01-Nov-1996 #text_change 26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Superfamily: hepatitis B virus surface antigen C;Keywords: glycoprotein; surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N; Alternate names: HBs antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                surface antigen - hepatitis B virus (subtype ayw, patient
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Introns: 123/2
                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: DNA
A;Residues: 1-389 <LAI>
A;Residues: 1-389 <LAI>
A;Cross-references: EMBL:X65257; NID:g59429; PIDN:CAA46349.1; PID:g59430
               র
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                  Matchee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Accession: S20745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  μ
2 LSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PISSIPSRIGDP 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLSSIPSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88.5%;
                                                                                          88.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 54; DB
Pred. No. 0.02
1; Mismatches
                                                                     0
                                                                                               Score 54;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (large envelope protein); surface antigen
                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genomes isolated from patients with HBsAg negat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
0.025;
                                                                                               0.025;
                                                                                                                    DB 2;
                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 384;
                                                                                                                       Length 389;
                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of hepatocellular carcino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pre-S2 (mi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                       0
```

```
N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
C;Species: hepatitis B virus, HBV
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 07-May-1999
C;Accession: A03705; S04569; JQ2107; PQ0608
R;Ono, Y; Onda, H; Sasada, R; Igarashi, K; Sugino, Y; Nishioka, K.
Nucleic Acids Res. 11, 1747-1757, 1983
A;Title: The complete nucleotide sequences of the cloned hepatitis B virus IA;Reference number: A93460; MUID:83168919; PMID:6300776
A;Accession: A03705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: GB:V00867
R;Rho, H.M.; Kim, K.; Hyun, S.W.; Kim, Y.S.
Nucleic Acids Res. 17, 2124, 1989
A;Title: The nucleotide sequence and reading frames of a mutant hepatitis B virus subtype
A;Reference number: S04568; MUID:89183619; PMID:2928116
A;Accession: S04569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A.M.; Mushahwar, I.K.; Magnius, J. Gen. Virol. 74, 1341-1348, 1993
A;Title: Genetic relatedness of hepatitis B viral strains of diverse geographical origin A;Reference number: JQ2044; MUID:93329382; PMID:8336122
A;Accession: JQ2107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A,Experimental source: genogroup C, subtype adr, strain pBRHBadr4
R,Norder, H., Courouce, A.M., Magnius, L.O.
T. Gen. Virol. 73, 3141-3145, 1992
A,Title: Molecular basis of hepatitis B virus serotype variations within the four major & A,Reference number: PQ0453, MUID:93107848; PMID:1469353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-400 < ONO >
                                                                                                                                                                                                                                                                                                                            A;Gene: pre-S1/pre-S2/S
C;Superfamily: hepatitis
C;Keywords: glycoproteir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: DNA
A;Residues: 1-50,'R',52-66,'YP',69-129,'V',131-142,'P',144-164,'S',166-176,'S',178-338,'C
                                                                                                                                                                                                                                    C;Superfamily: hepatitis B virus surface antigen C;Keywords: glycoprotein; surface antigen (gene pre-S2/S) #status predicted F;120-400/product: middle surface antigen (gene S) #status predicted <MSA>F;175-400/product: major surface antigen (gene S) #status predicted <MSA>F;15,123,177/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                   A/Experimental source: subtype adrq+, C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 175-400 < NOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:X14193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    large surface antigen - hepatitis B virus (subtype adr)
                                                     Ś
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: DNA
A;Residues: 275-354 <NO2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: PQ0608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: translation not shown
                                                                                                                      Matches
                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150
160
                                                           1 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LSSIFSRIGDP
   PISSIFSRTGDP
                                                                                                                      l Similarity
10; Conserv
                                                                                                                      Conservative
                                                           12
                                                                                                                                                   83.3%;
                                                                                                                      1; Mismatches
                                                                                                                                                      Score 54; DB 1;
Pred. No. 0.026;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bau
                                                                                                                                                                                     Length 400;
                                                                                                                                Indels
                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA; subtype &
                                                                                                                                                                                                                                                                                                                  <DSA>
                                                                                                                                   0
```

C:Species: hepatitis B virus, HBV

A:Variety: subtype adr
C:Date: 09-Dec-1993 #sequence_revision 10-Nov-1995
C:Accession: S35528

R;Mukaide, M.; Kumazawa, T.; Hoshi, A.; Kawaguchi, R.; Hikiji, Nucleic Acids Res. 20, 6105, 1992 A;Title: The complete nucleotide sequence of hepatitis B virus

surface antigen - hepatitis B virus (subtype adr) N;Alternate names: envelope protein; HBs antigen N;Contains: surface antigen pre-S1 (large envelop C;Species: hepatitis B virus, HBV

envelope

protein); surface antigen

pre-S2

(mido

#text_change

virus,

subtype

adr

(SRADR)

RESULT 13

```
A;Introns: 210/3
C;Superfamily: hepatitis B virus surface antigen C;Keywords: surface antigen pre-S1 (large er F;1-445/Product: surface antigen pr
                                                                                                                                                                                                                                                                                                                                                      F;1-164/Domain: pre-S1 domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               surface antigen - hepatitis B virus (subtype adr)
N;Alternate names: HBs antigen
N;Contains: surface antigen pre-S1 (large envelope
C;Species: hepatitis B virus, HBV
A;Variety: subtype adr
C;Date: 07-Sep-1994 #sequence_revision 10-Nov-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Gene: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Experimental source: subtype adr
R:Mimms, L.T.; Solomon, L.R.; Ebert,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R; Loncarevic, I.F.; Zentgraf, H.; Schroeder, C.H.
Nucleic Acids Res. 18, 4940, 1990
A;Title: Sequence of a replication competent hepatitis B
A;Reference number: S12598; MUID:90370503; PMID:2395664
A;Accession: S43492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: protein
A;Residues: 57-95 <MIM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Mimms, L.T.; Solomon, L.R.; Ebert, J.W.; Fields, H.
Biochem. Biophys. Res. Commun. 195, 186-191, 1993
A;Title: Unique PreS sequence in a gibbon-derived hepatitis B virus variant.
A;Reference number: PN0601; MUID:93371402; PMID:8363598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Residues: 1-400 <M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Experimental source: subtype adr
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, August 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number:
A;Accession: S35528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;Molecule type: protein ;Residues: 165-196 <MI2>
                                                                                                                                                                                                                             1-164/Domain: pre-S1 domain #status predicted <PREI>
165-445/Product: surface antigen pre-S2 (middle envelope protein)
165-219/Domain: pre-S2 domain #status predicted <PRE2>
1720-445/Product: surface antigen S (small envelope protein) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Accession: PN0602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Residues: I-445 <LON>
Cross-references: EMBL:X52939; NID:g457780; PIDN:CAA37114.1; PID:g457783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;1-400/Product: surface antigen pre-S1 (large envelope protein) #status predicted <PS;1-119/Domain: pre-S1 domain #status predicted <PRE1>;120-400/Product: surface antigen pre-S2 (middle envelope protein) #status predicted;120-174/Domain: pre-S2 domain #status predicted <PRE2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Date: 07-Sep-1994 #sequence revision 10-Nov-1995 #text_change 26-Aug-1999
Accession: S43492; PN0601; PN0602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Status: translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Gene: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: EMBL:D12980; NID:g221500; PIDN:BAA02359.1; PID:g221502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Introns: 165/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    175-400/Product: surface antigen S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Keywords: surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       160 PISSIFSRIGDP 171
                                                                                                                         госат
1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 PLSSIFSRIGDP 12
                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PN0601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-400 <MUK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hepatitis B virus surface antigen
                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acid sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S35527; MUID:93096607; PMID:1461746
                                                                                                                                                                                                                                                                                                                                                                      antigen pre-S1 (large envelope protein) #status
                                                                                                        88.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88.5%;
                                                                                                                Score 54; I
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 54;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (large envelope protein); surface antigen
                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (small envelope protein) #status predicted <PSD>
                                                                                                                                                                                                                    envelope protein) #status
                                                                                                        DB 2;
0.029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.026;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                              ۲
                                                                                                                                             Length 445;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genome with a prex open
                                                              .
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                    #status
                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                    predicted <PSD>
                                                                                                                                                                                                                                                                                                                                                                               predicted <PS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  predicted <PS1
                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pre-S2 (mi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

Ψ

2003, 09:26:29

```
Search completed: February Job time: 1.79443 secs
                                                                                                                                                                                                                                                                                                                     C; Keywords: glycoprotein; surface antigen

F;1-389/Product: surface antigen pre-S1 (large envelope protein) #status predicted <PS1>
F;1-08/Domain: pre-S1-specific domain #status predicted <PREI>
F;109-389/Product: surface antigen pre-S2 (middle envelope protein) #status predicted <P:
F;109-163/Domain: pre-S2-specific domain #status predicted <PRE2>
F;164-389/Product: surface antigen S (small envelope protein) #status predicted <PSD>
F;164-389/Product: surface antigen S (small envelope protein) #status predicted <PSD>
                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Norder, H.; Ebert, J.W.; Fields, H.A.; Mushahwar, I.K.; Magnius, L.O. virology 218, 214-223, 1996
A;Title: Complete sequencing of a gibbon hepatitis B virus genome reveals a unique A;Reference number: $67503; MUID:96207410; PMID:8615024
A;Accession: $67506
                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Species: hepatitis B vīrus, HBV
A;Variety: subtype ayw3, isolate Hope CH1357
C;Date: 29-Jan-1998 #sequence_revision 06-Peb-1998
                                                                                                                                                                                                                                                                                                                  F;4,112,166/Binding site:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Superfamily: hepatitis B virus surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Introns:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Gene: pre-S1/pre-S2/S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: EMBL:U46935; NID:g1814218; PIDN:AAB41952.1; A;Experimental source: subtype ayw3, isolate Hope CH1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: DNA
A; Residues: 1-389 < NOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N; Contains: surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N; Alternate names:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   large surface antigen - hepatitis B virus (subtype ayw3, isolate Hope CH1357)
                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Accession: S67506
                                                                                                         150 ISSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   205
                                                                                                                                                          2 LSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PISSIPSRTGDP
                                                                                                                                                                                                                9
                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     envelope protein; HBs antigen
                                                                                                                                                                                                                                 77.0%;
81.8%;
                                                                                                                                                                                                                                                                                                               carbohydrate (Asn)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pre-S1 (large envelope protein); surface antigen
                                                                                                                                                                                                        Score 47; DB
Pred. No. 0.54
1; Mismatches
                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                             (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #text_change 26-Aug-1999
                                                                                                                                                                                                                                                         Length 389;
                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                             predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PID:g1814222
                                                                                                                                                                                                      0
                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pre-S2
```

genoty

pru)

			2 · .	
K				
-				Re
1			-	:
				•
		•		
	$rac{1}{2} \left(rac{1}{2} - r$			ŧ
				1 6 2 8
				T. STATES
			26	
F Kj				
R.				
The Constitution			•	
and the			\$ 1	
AT STANK				
100				
No. of March				
5 A. S. A.				
•				
. ·		. N		
9				
· ·		·		
			·	
			•	
				4

ď

```
Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                    Score
                   61
61
61
61
61
61
61
61
61
61
61
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein search, using sw model
                                                                                                                                                                                                                                                                  Query
Match
                                                            100.0
100.0
100.0
                                                                                                                                                                                                                        100.0
                                                                                                                                                                                                100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            February 3, 2003, 09:15:41; Search time 1.92335 Seconds (without alignments)
831.368 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994_DAT:
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000_DAT:
| SIDS2/gcgdata/geneseq/geneseq-embl/AA2000_DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A_Geneseq_101002:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
                                                                                                                                                                                                                                                               Length
            12
12
25
36
102
164
174
174
                                                                                                                                                                                                                                                                  B
            21
21
23
23
20
21
21
21
21
23
                               AAB10598
AAY87906
AAR14747
AAE17023
AAR76747
AAY30947
AAY30947
AAY93740
AAY90760
AAXY90760
                                                                                                                                                                                                                                                                  Ħ
                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                     HBV fusion protein
HBV cell surface p
HBV Pre S2 peptide
Hepatitis B virus
HBV surface antige
Human HbsAG (PreS2
Amino acid sequenc
Hepatitis B virus
HBsAg pre-S region
Pre-S gene region
                                                                                                                                                                                                                                                           Description
```

O.	52	52	52	52	52	52	54	54	54	54	54	54	54	54	54	54	54	54	54	59	59	59	59	59	59	59	59	59	61	61	61	61	61	61
83.	85	85.	85.	85.	85.	85.2	88.	88.	88.	88.	88.	88.	88.	88.	88.	88.	88.	88.		96.	96.	96.		96.	96.	96.	96.	96.	100.	100.	100.	100.0	100.	100.0
175	399	399	389	174	55	54	400	400	389	281	281	281	281	281	281	281	174	174	174	389	347	174	174	67	67	64	64	55	393	389	389	281	281	215
10	22	22	22	10	22	15	21	17	7	22	20	15	œ	7	7	7	13	12	12	22	21	13	12	23	22	23	22	œ	22	13	13	20	13	21
AAP91482	AAG66932	AAG66919	AAG62931	AAP91483	AAE04710	AAR47945	AAY54045	AAR93801	AAP60794	AAM48419	AAY32834	AAR62870	AAP70294	AAP60617	AAP60560	AAP60163	AAR23871	AAR15622	AAR12394	AAG66931	AAB10596	AAR23868	AAR15618	AAE17029	AAB81135	AAE17027	AAB81133	AAP70002	AAU14097	AAR27474	AAR27472	AAY32835	274	AAB10597
nslation pro	genoty	BPol p		8 1	virus	п.	Amino acid secenno	Hepatitia B virus		יייטטיי ש #ט	ີ ເ	1	T HRUDO	nal d	rie B	vpe adr	gene :	Aq pre-S regi	-S antigen	genotype D	Bion	т.	HBsAq pre-S region	֓֞֡֓֞֞֜֞֞֓֓֡֓֞֜֡֓֡֡֡֡֓֡֓֡֡֡֡֡֡֡֡֡֡֡֡֡֡֡	D (ie B vin	ָבָּ בַּ	titia B vi	TOMOTORY'S	protein		Ad protein	HBV fusion protein

ALIGNMENTS

AAB10598;

AAB10598 standard; Protein; 12 AA.

RESULT 1
AAB10598
ID AAB1
XX AAB1
XX AAB1
XX HBV
XX HBV
XX WIVI
XX WIVI
XX HCS
XX HCS WPI; 2000-514959/46. N-PSDB; AAA71751. Hildt E, Fusion protein; protein coat; virus-specific packaging signal, psi, virus protein; cell permeability; cell-specific binding site; LHB; large surface protein; core antigen; gene therapy. 05-FEB-1999; 04-FEB-2000; 2000WO-DE00363. (HILD/) HILDT E. 10-AUG-2000. WO200046376-A2. Hepatitis b virus. HBV fusion protein cell permeability peptide fragment. 08-JAN-2001 Hofschneider (first entry) 99DE-1004800 שי

Particle for cell-specific gene delivery, useful in gene therapy, comprises nucleic acid in protein coat that includes a fusion protein

of viral

protein,

permeability peptide and cell-binding site

Page

2

0

```
RRESULT 2
AAX/8709
ID AAX/8709
XX AAX/8709
AC AAX/8
AC Cell
CO AAX/8
AC AAX/8
AC Cell
CO AAX/8
AC CEll
CO AAX/8
AC CELL
CO BEGG
CO BEGG
CO BEGG
CO BEGG
CO AAX/8
AC CELL
CO BEGG
CO BEGG
CO BEGG
CO AAX/8
AC CELL
CO BEGG
CO BEGG
CO BEGG
CO BEGG
CO AAX/8
AC AAX/8
AC CELL
CO BEGG
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local 8
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This invention describes a novel particle (A), comprising a protein coat with a fusion protein (FP), and, inside the coat, a nucleic acid (I) including the sequence for a virus-specific packaging signal (psi) and a structural gene. FP contains a virus protein (VP), a peptide (P) that mediates cell permeability and a heterologous cell-specific binding site (RGD). The invention also describes (1) producing (A) in which FP contains an LHBs (large surface protein of hepatitis B virus (HBV)) and RGD; (2) preparing (A) in which FP contains an HBV core antigen (HBcAg), (P) and RGD; (3) FP; (4) DNA encoding FP; and (5) expression vector containing the DNA of (d). The products of the invention are used in gene therapy of cells and tissues, in vivo or ex vivo. This sequence represents a fragment of the Hepatitis b virus cell permeability peptide which is described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY87906;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY87906 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cell surface protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HBV cell surface protein ZPP fragment.
This invention describes a novel cell permeability mediating polypeptide (CPM) comprising (A) or a sequence which differs by one or more amino acids, which shows cell permeability and is not hepatitis B virus (HBV) surface protein and where the DNA sequence of the latter amino acid sequence hybridizes with the DNA of (I). CPM can be used to mediate cell permeability of substances, especially polypeptides, nucleic acids and chemical connections. This is useful for increasing the reactivity of substances in therapeutic treatment of various conditions. This sequence represents a fragment of the HBV cell surface protein ZPP which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DE19850718-C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             therapy; treatment
                                                                                                                                                                                                                                                                                                     Claim 1; Fig 1; 8pp;
                                                                                                                                                                                                                                                                                                                                                        Novel cell permeability-mediating polypeptide useful permeability of substances such as other polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAA39621.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2000-340689/30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (HILD/) HILDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ĮZĮ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           l Similarity
12, Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
milarity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oeee S;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98DE-1050718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98DE-1050718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                        German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; qqz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cell permeability mediating polypeptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 61; DB 21; I
pred. No. 3.7e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                        e in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                        mediating
cells -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

RESULT 4
AAE17023
ID AAE1

AAE17023 standard; peptide; 36 AA

0

XXXXXX

(first entry)

Hepatitis B 18-APR-2002 AAE17023;

(HBV) ayw

subtype pre-S2 region

```
RESULT 3
AAA11477
ID AAA11
XX AAA1
XX AAA1
XX BHBV
XX MONG
KW 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 12
맑
                                            á
                                                                                                  Matches
                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        is described in the method of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-MAY-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         epitope; antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Monoclonal antibodies; hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HBV Pre S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR14747;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR14747 standard;
                                                                                                                                                                                                                                            The peptide corresponds to residues 150-174 of the HBV PreS2 protein. It was used to raise monoclonal antibodies specific for the HBV M protein but which do not bind to the HBV S or L proteins. The MAb can be used to sub-type HBV and to prepare subunit voaccines for HBV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-NOV-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP456215-A
                                                                                                                                                                                                                                                                                                                                                                      Claim 1; Page 22; 24pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                             New MAbs to PreS2 and PreS1 polypeptide(s) of Hepatitis-Benyelope - used to sub-type HBV in sample and as vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1991-334198/46.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mimms LT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-MAY-1990;
                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (ABBO ) ABBOTT LABORATORIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 PLSSIFSRIGDP
11 PLSSIFSRIGDP
                                                 Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLSSIFSRIGDP 12
                                                 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           l Similarity
12; Conser
                                                                                                1 Similarity
12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Floreani
                                                                                                                                                                                                   25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                     ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90US-0522286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              91EP-0107488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
     22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               푺
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%;
                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٥.
                                                                                                        <u>.</u>.
                                                                                                                          Score 61;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 61; DB 21;
Pred. No. 3.7e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B virus; envelope;
                                                                                                                            , DB 12;
8.3e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 12;
                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                            25
                                                                                                                                                                                                                                                                                                                                                                                                                                                            against
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                             Gaps
```

```
RESULT 5
AAR76747
ID AAR7
XX
AC AAR7
XX
DT 18-M
XX
DB HBV
XX
                                                                                                                                                                                                                                                                                                                                              The invention relates to modified proteins comprising hepatitis B virus (HBV) core antigen (HBcAg) wherein one or more of the four arginine repeats has been deleted and the protein comprising the C-terminal C cysteine of HBcAg. The deleted region may be replaced by an epitope crarier to present the epitope to the immune system. This chimeric C from a protein other than HBcAg, in which case the HBcAg acts as a c carrier to present the epitope to the immune system. This chimeric C protein or its nucleic acid is useful as a vaccine or in a method of C prophylactic or therapeutic vaccination of the human or animal body, C particularly against HBV. The nucleic acid encoding the protein may C particularly against HBV. The nucleic acid encoding the protein may C protein or its nucleic acid may also be used as the basis of a C prophylactic vaccine against a range of diseases, e.g. HBV, hepatitis C virus (HCV), influenza, foot-and-mouth CC disease, polio, herpes, rabies, acquired immunodeficiency syndrome CC (AIDS), dengue fever, yellow fever, malaria, tuberculosis, whooping CC or gonorrhea. The present sequence is Hepatitis B virus (HBV) ayw
                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                             Query Match
     HBV surface antigen pre-S2 region and FimH residues 224-226.
                                                 18-MAR-1996
                                                                                     AAR76747
                                                                                                                AAR76747 standard; Peptide;
                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Fig 3A; 40pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2002-098223/13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22-JUN-2000; 2000GB-0015308.
06-OCT-2000; 2000GB-0024544.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus; HBV; core antigen; HBcAg; immune system; typhoid; prophylactic; gene therapy; vaccine; hepatitis A virus; HAV; herpes; hepatitis C virus; HCV; influenza; foot-and-mouth disease; diarrhoea; tuberculosis; polio; rabies; acquired immunodeficiency syndrome; AIDS; dengue fever; yellow fever; malaria; whooping cough; saimonellosis; food poisoning; meningitis; gonorrhea; antiviral; antibacterial; antiprotozoal; pre-S2 region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-JUN-2001; 2001WO-GB02817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200198333-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CELL-)
                                                                                                                                                                                                           22
                                                                                                                                                                                                    1 PLSSIFSRIGDP 12
|||||||||||
22 PLSSIFSRIGDP 33
                                                                                                                                                                                                                                                                                             ocal
                                                                                                                                                                                                                                                                             12;
                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                             pre-S2 region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CELLTECH PHARM LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Li J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ins comprising a modified hepatitis B core antigen, useful as in prophylactic or therapeutic vaccination of the human or by, particularly against hepatitis B virus infection -
                                                                                                                                                                                                                                                                                                                                              36 AA;
                                                                                                                                                                                                                                                                           Conservative
                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pumpens
                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۳.
                                                                                                                  60
                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                Score 61; DB 23,
Pred. No. 0.00012;
                                                                                                                                                                                                                                                                                                    Length 36;
                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                  ٠,
                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                  0
```

문 ş

RESULT 6
AAY30947
ID AAY3
XX
AC AAY3
XX

AAY30947 standard;

Protein;

102

AAY30947;

```
밁
                            Ś
                                                                                                                    CC comprises a fimH fusion gene comprising the sequence encoding the pre-S2 cc region of the hepatitis B viral surface antigen inserted into the fimH comprising the sequence encoding the pre-S2 region of the hepatitis B viral surface antigen inserted into the fimH cc resulting chimeric gene was then further modified by insertion of the cholera toxin B chain into a different position 224-226. The cc cholera toxin B chain into a different position of the FimH adhesin of type 1 fimbriae. Restiction site handles (BglII-sites) were introduced into the fimH gene, and the foreign epitopes are then inserted in-frame. CC in the selected positions the insertion of the epitopes did not cc significantly alter the adhesive function of the FimH protein. The cc expression of the chimeric proteins on the surface of fimbriae on cc bacterial hosts illustrated the possibility of using bacterial adhesins a general presenters of foreign antigens and epitopes. These chimeric cc genes may be used in the production of variant FimH adhesins which may concern the surface of the surface of the surface compounds and microbial cells to locations comprising selected receptors to which the adhesins bind.
                                                           Matches
                                                                           Query Match
Best Local :
                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                       Example 3; Page 57; 152pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Receptor specific bacterial adhesins - useful compounds and microbial cells to locations of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hasty DL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FimH;
FimA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-AUG-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9520657-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GXBI-) GX BIOSYSTEMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc-difference
 42
                                                                        Local
                          1 PLSSIFSRIGDP 12
PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1995-275442/36.
                                                          12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 type 1 fimbriae; organelle; adhesin; alpha-D-mannoside residue; FimF; FimG; receptor binding site; PCR; amplify.
                                                                        Similarity
                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Klemm P, Molin S,
                                                    100.0%; ilarity 100.0%; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis B virus.
Escherichia coli.
                                                                                                                   ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94US-0187166.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95WO-DK00042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note= "Represents FimH residue 226"
53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Linker peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "HBV surface antigen pre-S2 region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Linker peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Represents FimH residue
                                                     Score 61; DB 16; Length 60; Pred. No. 0.00021; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pallesen L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sokurenko
                                                                                                                                                                                                                                                                                                                                                                                                                                              for targetting active receptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EV
                                                    ٥,
                                                    Gaps
                                                    0
```

20-0CT-1999

(first entry

```
This invention describes the identification of a novel polynucleotide (1) cancodes a polypeptide (II) with similar effect. The invention also codes a polypeptide (III) with similar effect. The invention also codescribes the identification of a polynucleotide (Ia) encoding an code accessory molecule (IIa) that improves transport and presentation of accessory molecule (IIa) that improves transport and presentation of cantigen by a cell. The products of the invention have antibacterial, cantivital, antifungal, anti-allergic, antidiabetic, anti-inflammatory. CC anti-arthritic, anti-asthma, anticancer and immunomodulatory. Optimized (I) are incorporated into (A), or (I) or its encoded (II) are conditions (becterial, viral or fungal), autoimmune disease (e.g. conditions (e.g. psoriasis or multiple sclerosis), other inflammatory conditions (e.g. psoriasis or pancreatitis), immune deficiency, allergy, cc asthma or cancer (including metastases). (I) are also used for recombinant production of (II). (I) make it possible to tailor an immune cc response to particular requirements, e.g. to direct a Thi-type helper cresponse to increase humoral or cellular responses (functioning as controls or isotype switching. This sequence represents the HBsAg (Pres2 plus S region) truncated peptide which is used in the method of crease plus s region) truncated peptide which is used in the method of
RESULT 7
AAY93740
ID AAYŞ
                                                                                              밁
                                                                                                                            S
                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vaccine; accessory molecule; antigen; transport; presentation; allergy; antibacterial; antiviral; antifungal; anti-allergic; antidiabetic; anti-inflammatory; anti-arthritic; anti-asthma; anticancer; treatment; prevention; infection; bacterial; viral; fungal; autoimmune disease; rheumatoid arthritis; diabetes; multiple sclerosis; pancreatitis; inflammatory condition; psoriasis; immune deficiency; metastases; cancer; Thi-type helper response; b two ral; cellular response; B cell; T cell; proliferation; immunogolobulin synthesis; isotype switching; immunomodulator; immune response; asthma; human; HbsAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Identifying nucleic acid that directly or indirectly modulates the immune response to a genetic vaccine vector, e.g. for prevention of infection or cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-508645/42.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Howard R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-AUG-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9941368-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 3; Page 70; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MAXY-) MAXYGEN INC
                                                                                                                                                                                                                                              Sequence
                                                                                              4
                                                                                                                                                                       Local Similarity 100
108 12; Conservative
                                                                                                                                    μ
                                                                                                                                                                                                                                                                                      invention.
                                                                                                                            PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HbBAG
                                                                                              PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Punnonen J,
                                                                                                                                                                                                                                                  102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (PreS2 plus S region) truncated peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0074294.
98US-0021769.
                                                                                                                                                                                                                                                  $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99WO-US03020.
                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Stemmer
                                                                                                                                                                         0
                                                                                                                                                                         Score 61; DB 20;
Pred. No. 0.00038;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Whalen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ឧ
                                                                                                                                                                                                             Length 102;
                                                                                                                                                                             Indels
                                                                                                                                                                             0
                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       얁
                                                                                                                                                                             0
```

AAY93740 standard; Protein; 164 AA

```
밁
                                                                                                                                                                                                                                                               δ
Best Local Similarity
Matches 12; Conser
                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Plant expression vector; antigen; hepatitis B surface antigen; HBsAg;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY93740;
                                                                                                                                                                                                                                                                                                                                                                    The specification describes a plant expression vector which comprises two expression cassettes, the first comprising a polynucleotide encoding an antigen and the second comprising a non-identical polynucleotide encoding the same antigen. The antigen is especially a hepatitis B surface antigen (HBBAg). The expression vector is used to transform bacterial and plant cells to elicit the production of anti-hepatitis B antibodies and are useful as vaccines. The present sequence represents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New expression vector for transforming plants comprising two expression cassettes useful for producing plant material comprising anti-hepatitis B antibodies -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200037610-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Amino acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB; AAA47000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mason
                                                                                                                                                                                                                                                                                                                                                          a pre-S peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (BOYC-) BOYCE THOMPSON INST PLANT RES (HEAL-) HEALTH RES INST.
                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure;
                                                                                                                                                                                   AAY90760 standard; Protein; 164 AA.
                                                                fusion protein; diagnosis; coprecipitate.
                                                                                        Nuclear localisation signal; NLS;
                                                                                                                                      18-AUG-2000
                                                                                                                                                             AAY90760;
                                                                                                                                                                                                                                           149
                                                                                                               Hepatitis B virus preS protein sequence
                     WO200020606-A1
                                          Hepatitis B virus
                                                                                                                                                                                                                                                                  .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000-452181/39.
                                                                                                                                                                                                                                                                  PLSSIFSRIGDP 12
                                                                                                                                                                                                                                             PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ,SH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thanavala Y,
                                                                                                                                                                                                                                                                                                                                       164 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fig 5; 144pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98US-0113827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-US31020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for pre-S peptide
                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arntzen CJ,
                                                                              l; NLS; SV40; large T cell antigen;
detection; variant; vaccine; chape
                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                     Score 61; DB 21;
Pred. No. 0.00064;
                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Richter E;
                                                                                                                                                                                                                                                                                                                 Length 164;
                                                                                                                                                                                                                                                                                             Indels
                                                                                 chaperone;
                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                            0
```

02-OCT-1998;

98WO-EP06298

```
RESULT 9
AAR15617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
   Hepatitis B virus surface antigen epitope(s) immunogens or diagnostic reagents
                                         WPI; 1991-369007/50
                                                                Milich
                                                                                                           11-MAY-1990;
                                                                                                                                 10-MAY-1991;
                                                                                                                                                                                                                   T-cell epitope; vaccine; hepatitis B virus; antigen.
                                                                                                                                                        28-NOV-1991.
                                                                                                                                                                               W09117768-A.
                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                            HBsAg pre-S region subtype ayw.
                                                                                                                                                                                                                                                                                                               AAR15617 standard; protein; 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention describes a polynucleotide (I) encoding a fusion protein (FP) (II) which is stable in a cell, and comprises a first polypeptide (P1) and a second polypeptide (P2) which co-precipitates a chaperone. The invention also provides methods for the production of fusion proteins which comprise epitopes. Compositions comprising the fusion proteins or epitopes of the invention are used as vaccines, and and efficient means of reliably expressing (poly) peptides comprising proteins. The present sequence represents the Hepatitis B virus (HBV) present sequence, which is used in an example from the present
                                                                                                                                                                                                                                                                        25-MAR-1992
                                                                                                                                                                                                                                                                                               AAR15617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                              150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 1; Page 26; 57pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Novel polynucleotide encoding a fusion protein which is stable in a cell, useful for the production of peptides which coprecipitate chaperones, by using truncated variants of the SV40 large T antigen with an intact N-terminus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2000-328936/28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Reimann H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                       1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                            PLSSIFSRIGDP
                                                                DR,
                                                                                                                                                                                                                                                                                                                                                                                                                        l Similarity
12; Conserv
                                                                                   SCRIPPS CLINIC & RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REIMANN H.
SCHIRMBECK R.
                                                              Thornton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; ilarity 100.0%; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Schirmbeck R;
                                                                                                                                                                                                                                                                    (first entry)
                                                                                                          90US-0522663
                                                                                                                                 91WO-US03268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98WO-EP06298
                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                Score 61; DB 21;
Pred. No. 0.00064;
                                                                                                                                                                                                                                                                                                                  Å
                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                               0.00064;
               useful
                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
              as vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                  ç,
                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
The sequences given in AAR23867 - AAR23871 are amino acid sequences CC deduced from sequences of the pre-S portion of the env genes CC corresponding to several hepatitis B virus (HBV) subtypes. These CC proteins have properties distinct from those of the S-protein in CC residues, an abscence of Cys residues, the highest subtype-dependant CC variability among HBV DNA gene products and little homology with CC analogous sequences corresponding to nonhuman hepadnavirus. These CC properties suggest that the pre-S gene coded portion of the HBV CC envelope is expose to the surface of the virion, is a target for the host immune response and is responsible for the host range of HBV CC (limited to humans and some primates). Synthetic paptides and CC opportunity to explore the biological role of the pre-S protein moiety
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
AAR23867
ID AAR23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                         Disclosure; Fig 2; 59pp; English.
                                                                                                                                                                                                                                                                      Hepatitis B pre-S peptide immunogen and vaccine - for treatment and diagnosis of hepatitis B
                                                                                                                                                                                                                                                                                                                          WPI; 1992-161100/20.
                                                                                                                                                                                                                                                                                                                                                           Kent
                                                                                                                                                                                                                                                                                                                                                                                                                                    28-APR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-APR-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-MAY-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP485361-A.
                                                                                                                                                                                                                                                                                                                                                                                     (CALY) CALIFORNIA INST TECHNOLOGY (NYBL-) NY BLOOD CENT INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitits B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  env gene; hepatitis B virus; HBV; S-protein; hydrophilic; hepadnavirus; immune response; antibody; envelope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The amino acid sequence is that of a pre-S T cell epitope polypeptide of the pre-S (2) region of hepatitis B surface antigen y (HBSAg/y). It can be used to prime or vaccinate a host to induce responsiveness to HBV vaccine. The T cell epitope polypeptides can also be used as immunogens that prime T cells that respond to native HBSAg B cell as substitutes for carrier immunogens such laypeptides are also useful as substitutes for carrier immunogens such as KuH and are safe, polypeptides can be used as immunogens for prodn. of antibodies. See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR23867;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR23867 standard; protein; 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pre-S gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-NOV-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polypeptides can be used also AAR15618-R15622.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160 PLSSIFSRIGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 1; Fig 1; 91pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
nes 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                        Neurath AR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 region translation product (1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     174 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          virus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                   86US-0856522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                87EP-0100663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          subtype ayw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 61; DB 12;
Pred. No. 0.00068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
RESULT 11
AAB10597
ID AAB10597
AC AAB10
XX AB10
XX AB10
XX OB-JF
DT OB-JF
DX HBV I
XX Pusic
XX O4-F
XX Pusic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       និនិនិនិនិ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local 9
                              * Query Match
Best Local
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the HBV envelope. Portions of these amino acid sequences can be used in a vaccine or in diagnostics for the detection of antigens an antibodies, esp. those for the pre-S gene in sera of HBV infected humans and certain animals, eg. chimpanzees.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fusion protein; protein coat; virus-specific packaging signal; psi; virus protein; cell permeability; cell-specific binding site; LHB; large surface protein; core antigen; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAB10597 standard; Protein; 215 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HBV fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB10597;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis b virus.
                                                                                                                                                                                             This invention describes a novel particle (A), comprising a protein coat with a fusion protein (FP), and, inside the coat, a nucleic acid (I) including the sequence for a virus-specific packaging signal (psi) and a structural gene. FP contains a virus protein (VP), a peptide (P) that mediates cell permeability and a heterologous cell-specific binding site (RCD). The invention also describes (I) producing (A) in which FP (RCD). The invention also describes (I) producing (A) in which FP (RCD). The properties of the protein of hepatitis B virus (HBV)) and contains an LHBs (large surface protein of hepatitis B virus (HBV)) and (RCD; (2) preparing (A) in which FP contains an HBV core antigen (HBCA9), (P) and RCD; (3) FP; (4) DNA encoding FP; and (5) expression vector containing the DNA of (d). The products of the invention are used in gene therapy of cells and tissues, in vivo or ex vivo. This sequence represents a fusion protein which is described in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200046376-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-FEB-2000; 2000WO-DE00363.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160 PLSSIFSRIGDP 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 comprises nucleic acid in protein coat of viral protein, permeability peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Particle for cell-specific gene delivery, useful in gene therapy, comprises nucleic acid in protein coat that includes a fusion protein of viral protein, permeability peptide and cell-binding site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hildt E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (HILD/) HILDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 14; Fig 2; 34pp; German.
                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000-514959/46.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 Similarity
12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA71735.
                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hofschneider P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             174 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                       215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
   100.0%; Score 61; DB 21; ilarity 100.0%; Pred. No. 0.00086; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99DE-1004800
                                                                                                                          $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 61; DB 13;
Pred. No. 0.00068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HBcAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 174;
                                                                      Length 215;
                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                        0
```

```
AAR27471
ID AAR277
XX Hepat KW Vacc:
XX W Vacc:
XX W Vacc:
XX Syntl
XX KW delele
XX Syntl
XX W GS1;
FT Regii
FT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
The sequence given is encoded by an expression cassette which consists of the hepatitis B virus (HBV) M protein (small pre-S CC antigen, spaAg) gene precisely linked to a modified synthetic vaccinia virus H6 early/late promoter. This DNA sequence was used in CC vaccinia virus H6 early/late promoter. This DNA sequence was used in the construction of a NYVAC recombinant expressing the HBV gene. CC other HBV genes were also used in the construction. These were HBV CC entire pre-S region (S12/core, S1 + S2). Each of these gene sequences compared by from each other by large regions of these gene sequences were inserted individually into three different sites of NYVAC containing essential genes. NYVAC is a Copenhagen vaccine strain of containing essential genes. NYVAC is a Copenhagen vaccine strain of containing virus which has been modified by deletion of six non-essential compared to the genome encoding known or potential virulence factors. The deletion loci were engineered as recipient loci for the insertion of the three inserted sequences ensured conforming genes. The spacing of the three inserted sequences ensured conforming genome and would cause unviable vaccinia virus. See also cc vaccinia genome and would cause unviable vaccinia virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR27471 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-MAR-1991;
11-JUN-1991;
06-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR27471;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis B virus; HBV; M protein; small pre-S antigen; spsAg; vaccinia virus; H6; early/late; promoter; NYVAC; recombinant; HBV L; large pre-S antigen; lpsAg; fusion protein; pre-S region; S12/core; S1; S2; Copenhagen vaccine strain; vaccinia virus; virulence factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             spsAg protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-FEB-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cox WI,
Limbach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        deletion loci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9215672-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vaccine comprises recombinant, attenuated vaccinating against viral infections such HIV, HSV, EBV, CMV, mumps etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Fig 9; 456pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vaccinating against viral HIV, HSV, EBV, CMV, mumps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (VIRO-) VIROGENETICS CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \mu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1992-331718/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           De Taisne C, Fr.
KJ, Norton EK,
M, Tartaglia J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAQ29103.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              recipient loci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91US-0713967.
92US-0847951.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9105-0666056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92WO-US01906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /label= S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Francis J, Gettig RR, Jo
c, Paoletti E, Perkus ME,
J, Taylor J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pox-virus - use for as rabies, hepatitis B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Johnson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pincus SE;
```

```
This sequence is the hepatitis B virus (HBV) surface antigen (HBSAg)
CC pres2-S region. This sequence was used to create a recombinant antigen
CC library. The library comprises recombinant nucleic acids encoding
CC antigenic polypeptides and is produced by recombination of at least two
CC disease related antigenic polypeptide. The library can be used to produce
CC a recombinant multivalent antigenic polypeptides of the invention, that
CC contains at least two antigenic polypeptides of the invention, that
CC contains at protective or therapeutic response to a wide variety of
CC infectious agents (bacteria, viruses, parasites, including Plasmodium
CC arthritis, diabetes, multiple sclerosis); other inflammatory conditions
CC and cancer, also, where directed against sperm antigens, they can be used
CC optimised immune response against a wide variety of antigens, they can be used
CC optimised immune response enables can be evolved to induce an
CC particularly a broad spectrum response to many different strains of a
CC nathoren, including attrains that are likely to annear in the future
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
AAY32835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ž Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-OCT-1998;
11-FEB-1998;
11-FEB-1998;
                                                                                                                                                                                                                                                                                                                                    Recombinant multivalent antigenic polypeptide produced recombining nucleic acid sequences and screening, used
                                                                                                                                                                                                                                                                                              Example 14; Fig 17; 153pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Bass SH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (MAXY-) MAXYGEN INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HBsAg; PreS2-S; recombinant antigen library; disease-related antigen multivalent antigenic polypeptide production; infection; allergen; asthma; autoimmune disease; rheumatoid arthritis; diabetes; therapy; multiple sclerosis; inflammatory condition; cancer; contraception; immune response; hepatitis b surface antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9941383-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis b virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-AUG-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY32835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY32835 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                    1999-518452/43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PreS2-S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12;
                                                                                                                                                                                                                                                                                                                              e.g.
                                                                                                                                                                                                                                                                                                                                                                                         AAZ10968.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                              Howard R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              281 AA;
                                                                                                                                                                                                                                                                                                                              infections and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0105509.
98US-0021769.
98US-0074294.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                region protein sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99WO-US02944.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                               Punnonen
                                                                                                                                                                                                                                                                                                                             cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 61; DB 13;
Pred. No. 0.0011;
                   are likely to appear in the future.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                           Stemmer WPC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                            Whalen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                      by
in vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT 14
AAR27472
ID AAR27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 12
 The sequence given is encoded by an expression vector which comprise the hepatitis B virus (HBV) L protein (large pre-S antigen, lpsAg) gene linked to the compox hemorraghic region (u) promoter. This DNA sequence was used in the construction of a NYVAC recombinant expressing the HBV gene. Other HBV genes were also used in the construction. These were HBV M protein (small pre-S antigen, spaAg) and a fusion protein composed of the entire pre-S region (S12/core, into three different sites of NYVAC separated by from each other by large regions of vaccinia DNA containing essential genes. NYVAC is Copenhagen vaccine strain of vaccinia virus which has been modified deletion of six non-essential regions of the genome encoding known o
                                                                                                                                                                                                                                                                                                                                                          07-MAR-1991;
11-JUN-1991;
06-MAR-1992;
                                                                                                                                                              Disclosure; Fig 11; 456pp; English
                                                                                                                                                                                      Vaccine comprises recombinant, attenuated pox-virus - use for vaccinating against viral infections such as rabies, hepatitis HIV, HSV, EBV, CMV, mumps etc.
                                                                                                                                                                                                                                             N-PSDB; AAQ29104.
                                                                                                                                                                                                                                                                                                           Cox WI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis B virus; HBV; M protein; small pre-S antigen; span vaccinia virus; hemorraghic region; u; promoter; NYVAC; rec HBV L; large pre-S antigen; lpsAg; fusion protein; pre-S reg S12/core; S1; S2; Copenhagen vaccine strain; vaccinia virus; virulence factor; deletion loci; recipient loci.
                                                                                                                                                                                                                                                                                               Limbach
                                                                                                                                                                                                                                                                                                                                                                                                          09-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
region
                                                                                                                                                                                                                                                                                                                                 (VIRO-) VIROGENETICS CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9215672-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-FEB-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR27472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR27472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   lpsAg protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                         1992-331718/40.
                                                                                                                                                                                                                                                                              , De Taisne C, F
h KJ, Norton EK,
e M, Tartaglia J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             standard; Protein; 389 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                                                                                                                                                                                                                                       91US-0666056.
91US-0713967.
92US-0847951.
                                                                                                                                                                                                                                                                                                                                                                                                         92WO-US01906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        109..163
/label= $2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164..389
/label= S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /label
                                                                                                                                                                                                                                                                           Francis J, Gel
K, Paoletti E,
J, Taylor J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 61; DB 20;
Pred. No. 0.0011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                        Gettig RR, J
3, Perkus MB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20;
                                                                                                                                                                                                                                                                                                     Johnson GP;
                                                                                                                                                                                                                                                                                          Pincus SE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NYVAC; recombinant; pre-S region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        spaag;
                                                                                                            lpsAg)
This DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
by or
```

```
RESULT 15
AAR27474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  និនិនិនិនិនិ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    potential virulence factors. The deletion loci were engineered as recipient loci for the insertion of foreign genes. The spacing of the three inserted sequences ensured that any recombination that did occur would lead to disruption of the vaccinia genome and would cause unviable vaccinia virus. See also AAQ35501-864.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis B virus; HBV; M protein; small pre-S antigen; spsAg; vaccinia virus; Amsacta moorei entomopoxvirus; AmsEV; 42 kD; pro NYVAC; recombinant; HBV L; large pre-S antigen; lpsAg; fusion pre-S region; S12/core; S1; S2; Copenhagen vaccine strain; vaccinia virus; virulence factor; deletion loci; recipient loci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-FEB-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR27474 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic.
                                                                                                                                                                                                                                                             07-MAR-1991;
11-JUN-1991;
                                                                                                                                                                                                                                                                                                                                                                               Region
                                                                                                                                                                                                                                                                                                                                                                                                      Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 PLSSIFSRIGDP 160
The sequence given is encoded by an expression cassette which comprises the hepatitis B virus (HBV) L protein (large pre-S antigen, lpsAg) gene which is precisely linked to the Amsacta moorei entomopoxytrus (AmsPV) 42 kD promoter. This DNA sequence was used in the construction of a NYVAC recombinant expressing the HBV gene.
                                                                                           Vaccine comprises recombinant, attenuated vaccinating against viral infections such HIV, HSV, EBV, CMV, mumps etc.
                                                                                                                                                                                                     Cox WI,
                                                                                                                                                                                                                                                                                                09-MAR-1992;
                                                                                                                                                                                                                                                                                                                       17-SEP-1992
                                                                                                                                                                                                                                                                                                                                              W09215672-A
                                                                                                                                                                                                                                                                                                                                                                                                                            Region
                                                                      Disclosure; Fig 15; 456pp; English.
                                                                                                                                           N-PSDB; AAQ29106
                                                                                                                                                                               Riviere
                                                                                                                                                                                                                            (VIRO-) VIROGENETICS
                                                                                                                                                                                          Limbach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         promoter/S12/core gene.
                                                                                                                                                       1992-331718/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                           De Taisne C, Fig. Norton EK, P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
ilarity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                 91US-0666056.
91US-0713967.
92US-0847951.
                                                                                                                                                                                                                                                                                                92WO-US01906
                                                                                                                                                                                                                                                                                                                                                                                                      /label= S1
109. 163
                                                                                                                                                                                                                                                                                                                                                                               /label= S2
164..389
                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                             CORP.
                                                                                                                                                                               Francis J,
K, Paoletti
J, Taylor J
                                                                                                                                                                                                                                                                                                                                                                      Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 61; DB 13;
Pred. No. 0.0016;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                , É
                                                                                                                                                                                            Gettig RR, Jo
E, Perkus ME,
                                                                                                             pox-virus - use for
as rabies, hepatitis
                                                                                                                                                                                             Johnson G
E, Pincus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                      1 GP;
9 SE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gape
                                                                                                              B
```

```
888888888888888888
                                                       밁
                                                                                          ঠ
                                                                                                                                      Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                               Other HBV genes were also used in the construction. These were HBV M protein (small pre-S antigen, spsAg) and a fusion protein composed of the entire pre-S region (S12/core, S1 + S2). Each of these gene sequences were inserted individually into three different sites of NYVAC separated by from each other by large regions of vaccinia DNA NYVAC esparated by from each other by large regions of vaccine strain of containing essential genes. NYVAC is a Copenhagen vaccine strain of vaccinia virus which has been modified by deletion of six non-essential regions of the genome encoding known or potential virulence factors. The deletion loci were engineered as recipient loci for the insertion of foreign genes. The spacing of the three inserted sequences ensured that any recombination that did occur would lead to disruption of the vaccinia genome and would cause unviable vaccinia virus. See also
                                                                                                                                                                                                                                                             vaccinia genome and would AAQ35501-864.
                                                                                                                                                                                                                        Sequence
                                                         149
                                                                                 1 PLSSIFSRIGDP 12
                                                       PLSSIFSRIGDP 160
                                                                                                                             n 100.0%;
Similarity 100.0%;
12; Conservative 0.
                                                                                                                                                                                                                            389
2003, 09:23:52
                                                                                                                                             0
                                                                                                                                                                 Score 61; DB 13;
Pred. No. 0.0016;
                                                                                                                                                 Mismatches
                                                                                                                                                                                         DB 13;
                                                                                                                                                                                         Length 389;
                                                                                                                                                 Indels
                                                                                                                                                 0
                                                                                                                                                 Gaps
```

0

Search completed: February 3, 2003, 09:23:52 Job time : 2.92335 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95
                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                  Score
             protein search, using sw model
                                                                                                                                Query
Match
                                                             100.0
                                                                                                                                                                                                                                                                                             US-09-890-752A-20
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 February 3, 2003, 09:23:57; Search time 8.57143 Seconds (without alignments) 902.626 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4569144 Beqs, 644733110 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pending_Patents_AA_Main:*
                                                                                                                                                                                                                                                                                / cgn2_6/ptodata/1/paa/US06_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US07_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US080_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US081_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US081_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US081_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US084_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US084_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US085_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US086_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US086_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US080_COMB.pep:*
/ cgn2_6/ptodata/1/paa/US090_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.3 Compugen Ltd.
                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _6/ptodata/1
         12
12
12
12
12
                                                                                                                                B
         222222
   US-09-830-981-2

US-09-830-981-12

US-09-830-981-12

US-09-830-981-16

US-09-830-981-16
                                                                                                                                ä
                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /paa/PCTUS_COMB.pep:
                                                                                                                           Description
Sequence
Sequence
Sequence
Sequence
Sequence
2, Appli
4, Appli
12, Appli
12, Appli
14, Appl
16, Appl
18, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                   ٥
```

	45	44	43	42	41	4 (ט מ מ		3 6	, ,	יט באור	. (u	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	5	14	13	12	11	10	9	œ	7
	61	61	61	61	2 j	J F	ָר בּ	5 6	2 5	61	61	61	61	13	13	61	61	13	61	61	61	61	61	61	13	61	61	61	61	61	2	61	13	61	61	61	61	61
	100.0			100.0												•	•	•		•	•		00.	•	٠	8	100.0	8	8	88	3	8	8	8	8	100.0	8	00.
	389	2 A C	389	389	200	200	3 4	985	389	389	389	369	389	389	389	389	389	389	389	389	281	281	281	281	281	281	281	215	164	101	2 1	102	102	12	12	12	12	12
	26	י טו	19	w										œ	œ	7	4.	4		w	21	21	21	16	14	4.	ا سا	S t	, 0	- ;	۱ د	5 5	 4	26	25	24	22	22
AI.TGNMENTS	- 1	10-267-693-	-09-502-445-	11S-08-919-600-106	-08-48/-355	-08-487-266	-08-487-266	-08-485-551-1	-08-485-546	-08-485-	-08-484-	8-484-	-08-475-	-08-471-	-08-470-	-08-360-	-08-036-	-08-036-	US-07-847-951A-219	07-847	-09-724-969-	-09-724-890-	-09-724-648-1	-09-247-890-	-09-021-769-6	08-036-218-212	US-07-847-951A-214	09-990-7538-	00/71-5721-4	-17599-31030-4	20 23 0 0 0 0 0	-09-248-716-	-09-021-769-45	-10-226-956-2	10-144-549-	-10-077-555-9	-09-890-752A-	US-09-830-981-20
	Sequence 106, App	eductice Too'	equence 106,	quence 106, A	106,	æ	106,	106,	106,	equence 106	equence	106.	106,	D (2 ,	11,	217	214	219	, i			3 5	3 5	y educations	2 1 2	sequence 2	4	quence 41,	Sequence 45,	0	ייני טרי		3 -		0 1	יייייייייייייייייייייייייייייייייייייי	emience 20

ALIGNMENTS

```
US-09-830-981-2

i Sequence 2, Application US/09830981

i GENERAL INFORMATION:

APPLICANT: Eberhard Hildt

APPLICANT: Stephand: Schmidt

TITLE OF INVENTION: POLYPeptide Mediating Cell Permeability

FILE REFERENCE: 033392-001

i CURRENT FILING DATE: 2002-04-15

PRIOR APPLICATION NUMBER: US/09/830,981

CURRENT FILING DATE: 1999-11-03

PRIOR APPLICATION NUMBER: DE 198 50 718.6

PRIOR APPLICATION NUMBER: DE 198 50 718.6

PRIOR PILING DATE: 1998-11-03

PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

PRIOR APPLICATION NUMBER: DE 198 50 718.6

PRIOR PILING DATE: 1998-11-03

I PRIOR PILING DATE: 1998-11-03

PRIOR PILING MATE: 1998-11-03

PRIOR PILING DATE: 1998-11-03

PRIOR PILING DAT
```

밁 S

PLSSIFSRIGDP 12 PLSSIFSRIGDP

12

US-09-830-981-4 RESULT 2

```
PRIOR APPLICATION NUMBER: PCT/DE99/03506
PRIOR PILING DATE: 199-11-03
PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR FILING DATE: 1998-11-03
NUMBER OF SEQ ID NOS: 20
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 4
LENGTH: 12
TYPE: PRT
ORGANISM: Hepadnavirus
US-09-830-981-4
                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/830,981
CURRENT FILING DATE: 2002-04-15
PRIOR APPLICATION NUMBER: PCT/DE99/03506
PRIOR PILING DATE: 1999-11-03
PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR FILING DATE: 1998-11-03
NUMBER OF SEQ ID NOS: 20
SOPTWARE: PATENTIN Ver. 2.1
SEQ ID NO 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                   문
                                                                       RESULT 4
US-09-830-981-14
                                                                                                                                                                                                                                                                                                         p ORGANISM: Hepadnavirus
US-09-830-981-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 12, Application US/09830981 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Stephanie Schmidt
TITLE OF INVENTION: Polypeptide Mediating Cell Permeability
FILE REFERENCE: 033392-001
CURRENT APPLICATION NUMBER: US/09/830,981
CURRENT FILING DATE: 2002-04-15
CURRENT FILING DATE: 2002-04-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     equence 4, Application US/09830981
ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Eberhard Hildt
APPLICANT: Stephanie Sch
                                 Sequence 14, Application US/09830981
GENERAL INFORMATION:
                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -09-830-981-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Eberhard Hildt
APPLICANT: Stephanie Schmidt
TITLE OF INVENTION: Polypeptide Mediating Cell Permeability
FILE REFERENCE: 033392-001
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -
                                                                                                                                                                                                                       nmatch 100.0%; Local Similarity 100.0%; es 12; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 PLSSIFSRIGDP 12
                                                                                                                                                   1 PLSSIFSRIGDP 12
|||||||||||
1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLSSIFSRIGDP 12
 Eberhard Hildt
Stephanie Schmidt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 61; DB 22;
Pred. No. 0.00042;
                                                                                                                                                                                                                               Score 61; DB 22;
Pred. No. 0.00042;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Migmatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 22; Length 12;
                                                                                                                                                                                                                                                                       Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                         0
```

```
Sequence 18, Application US/09830981
GENERAL INFORMATION:
APPLICANT: Eberhard Hildt
APPLICANT: Eberhard Hildt
APPLICANT: Etephanie Schmidt
TITLE OF INVENTION: Polypeptide Mediating Ce
FILE REFERENCE: 033392-001
CURRENT APPLICATION UNMER: US/09/830,981
CURRENT PILING DATE: 2002-04-15
PRIOR APPLICATION NUMBER: PCT/DE99/03506
PRIOR FILING DATE: 1999-11-03
PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR PRIOR DATE: 1998-11-03
PRIOR FILING DATE: 1998-11-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Hepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: PRT
; ORGANISM: Hepadnavirus
US-09-830-981-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-830-981-16
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                 RESULT 6
US-09-830-981-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 100.
Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR FILING DATE: 1998-11-03
NUMBER OF SEQ ID NOS: 20
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 16
LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 16, Application US/09830981
GENERAL INFORMATION:
APPLICANT: Eberhard Hildt
APPLICANT: Stephanie Schmidt
APPLICANT: Stephanie Schmidt
CIRRINITATION: POlypeptide Mediating Cell Permeability
FILE REFERENCE: 03392-001
CURRENT FILING DATE: 2002-04-15
CURRENT FILING DATE: 2002-04-15
PRIOR APPLICATION NUMBER: PCT/DE99/03506
PRIOR PILING DATE: 1999-11-03
DRICK STILING DATE: 1999-11-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: Patentin Ver.
SEQ ID NO 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITIE OF INVENTION: Polypeptide Mediating Cell Permeability FILE REFERENCE: 033392-001
CURRENT APPLICATION NUMBER: US/09/830,981
CURRENT FILING DATE: 2002-04-15
PRIOR APPLICATION NUMBER: PCT/DE99/03506
PRIOR FILING DATE: 1999-11-03
PRIOR APPLICATION NUMBER: DE 198 50 718.6
PRIOR FILING DATE: 1998-11-03
NUMBER OF SEQ ID NOS: 20
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 12; Conservative 0
NUMBER OF SEQ ID NOS: 20
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                         _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                       PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 61; DB 22;
100.0%; Pred. No. 0.00042;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 61; DB 22;
Pred. No. 0.00042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                Cell Permeability
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
Query Match
Best Local Similarity
Thes 12; Conserva
                                                                                                                                                                         APPLICANT: Hildt, Eberhard
APPLICANT: Hofschneider, Peter
APPLICANT: Hofschneider, Peter
TITLE OF INVENTION: Particles for Gene Therapy
FILE REFERENCE: 107070-120 (VOS-013)
CURRENT APPLICATION NUMBER: US/09/890,752A
CURRENT EILING DATE: 2001-08-03
PRIOR APPLICATION NUMBER: PCT/DE00/00363
PRIOR FILING DATE: 2000-02-04
PRIOR FILING DATE: 1999-02-05
PRIOR APPLICATION NUMBER: DE 199 04 800.2
PRIOR FILING DATE: 1999-02-05
VUMBER OF SEQ ID NOS: 21
SEQ ID NO 20
LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; ORGANISM: Hepadnavirus
US-09-830-981-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Thes 12; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-830-981-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT; ORGANISM: Hepadnavirus
US-09-830-981-18
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 20, Application US/09890752A GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 20
LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                          -09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 20, Application US/09830981 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/830,981 CURRENT FILING DATE: 2002-04-15 PRIOR APPLICATION NUMBER: PCT/DE99/03506 PRIOR FILING DATE: 1999-11-03 PRIOR APPLICATION NUMBER: DE 198 50 718.6 PRIOR FILING DATE: 1998-11-03 NUMBER OF SEQ ID NOS: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Stephanie Schmidt
TITLB OF INVENTION: Polypeptide Mediating Cell Permeability
FILE REFERENCE: 033392-001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Eberhard Hildt APPLICANT: Stephanie Sch
                                                                                                                           TYPE PRT
TYPE TYPE
ORGANISM: Artificial Sequence
FEATURE:
                                                                                               OTHER INFORMATION: cell permeability-mediating peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 Similarity 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 61; DB 22; ilarity 100.0%; Pred. No. 0.00042; Conservative 0; Mismatchen n.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12
                          100.0%; Score 61; DB 22; 100.0%; Pred. No. 0.00042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 61; DB 22; Length 12; 100.0%; Pred. No. 0.00042;
                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
               M1smatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                             Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 12;
             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
```

```
US-10-226-956-284
                                                                                                                                                                                     밁
                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                       US-10-144-549-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-144-549-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-077-555-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 9
US-10-077-555-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                              Sequence 284, Application US/10226956 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 31
SOFTWARE: PatentIn version 3.1
SEQ ID NO 12
                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 12, Application US/10144549 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE:
          APPLICANT: Brophy, Colleen
APPLICANT: Komalavilas, Pac
APPLICANT: Panitch, Alyssa
APPLICANT: Joshi, Lokesh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 9, Application US/10077555 GENERAL INFORMATION:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: GeneShuttle Biopharm, Inc.
APPLICANT: Hwu , Paul L.
TITLE OF INVENTION: A NEW FUSION PROTEIN FOR USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Wang, Rong-fu
TITLE OF INVENTION: Use of Cell-Penetrating Peptides to Generate Antitumor Immunity
PILE REFERENCE: P02373US1/10200806
CURRENT APPLICATION NUMBER: US/10/077,555
CURRENT FILLING DATE: 2002-02-15
CURRENT FILLING DATE: 2002-02-15
                                                                                                                                                                                                                                                                                                                           LENGTH: 12

TYPE: PRT

ORGANISM: Hepatitis B virus

FEATURE:

NAME/KEY: MISC_FEATURE

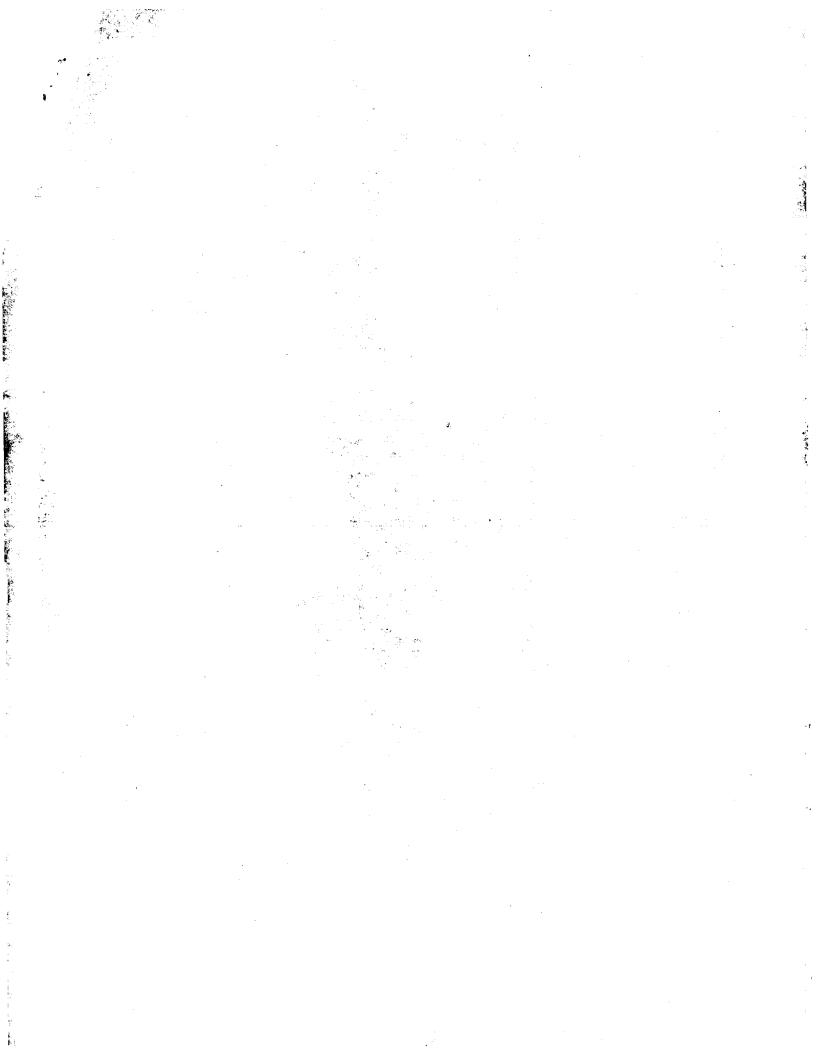
OTHER INFORMATION: The HBV PreS2 antigen consisting of the translocation motif from OTHER INFORMATION: residues 41-52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/144,549
CURRENT FILING DATE: 2002-05-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: MBHB 02-340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: US 60/268,687 PRIOR FILING DATE: 2001-02-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
ORGANISM: Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                  1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn version 3.1
                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                100.0%; Score 61; DB 25; 100.0%; Pred. No. 0.00042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 61;
100.0%; Pred. No.
                                              Padmini
                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.00042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                              Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 12;
                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Synthetic peptide US-10-226-956-284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-021-769-45
US-09-021-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/314,535
PRIOR FILING DATE: 2001-08-23
NUMBER OF SEQ ID NOS: 320
SOFTWARE: PatentIn version 3.1
SEQ ID NO 284
LENGTH: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 45, Application US/09021769
GENERAL INFORMATION:
APPLICANT: Punnonen, Juha
APPLICANT: Stemmer, Willem P.C.
                                                                                                                                                                                                                                                             CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Smith, Timothy L.
REGISTRATION NUMBER: 35,367
REFERENCE/DOCKET NUMBER: 0180
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 45:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: REAGENTS AND METHODS FOR SMOOTH MUSCLE THERAPIES FILE REFERENCE: ASU-1061-US CURRENT APPLICATION NUMBER: US/10/226,956 CURRENT FILING DATE: 2002-08-23 CURRENT FILING DATE: 2002-08-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FLOTT DESCRIPTIONS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: Methods and Compositions for Vaccine
TITLE OF INVENTION: Engineering
NUMBER OF SEQUENCES: 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Whalen, Robert Gerald APPLICANT: Howard, Russell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 102 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: peptide
          NAME/KEY: Peptide LCCATION: 1.102 OTHER INFORMATION: OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/0
FILING DATE: 11-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cal
                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             I Similarity 100.0%;
I Similarity 100.0%;
12; Conservative 0
                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3B: Townsend and Townsend and Crew LLP Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
            /note= "truncated Hepatitis B surface
antigen (HBsAg) (PreS2 plus S regions)
polypeptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/09/021,769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                    018097-021500US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 61; DB 26;
Pred. No. 0.00042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indelg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
CURRENT APPLICATION NUMBER: US/09/248,716
CURRENT FILING DATE: 1999-02-10
PRIOR APPLICATION NUMBER: US 60/074,294
PRIOR FILING DATE: 1998-02-11
NUMBER OF SEQ ID NOS: 6
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 6
LENGTH: 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; OTHER INFORMATION: Description of Artificial Sequence:truncated; OTHER INFORMATION: hepatitis B surface antigen (HBsAg) (PreS2 p); OTHER INFORMATION: regions)
US-09-248-716-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                  US-09-724-890-45
US-09-724-890-45
; Sequence 45, Application US/09724890
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 6, Applicat GENERAL INFORMATION: APPLICANT: Punnone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Whalen, Robert Gerald
APPLICANT: Howard, Russell
APPLICANT: Maxygen, Inc.
TITLE OP INVENTION: Optimization of Immunomodulatory Properties of Genetic TITLE OP INVENTION: Vaccines
FILE REFERENCE: 018097-030300US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 PLSSIFSRIGDP 12
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/724,890
FILING DATE: 28-Nov-2000
                                                                                                                                                                                                                                                                                                                        APPLICANT: Punnonen, Juha
Stemmer, Willem P.C.
Whalen, Robert Gerald
Howard, Russell
                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Methods and Compositions for Vaccine
Engineering
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tch 100.0%;
al Similarity 100.0%;
12; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/09248716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Punnonen, June P.C.
                                                                                                                                                                                  CITY: San Francisco
STATE: California
                                                                                                                                              ZIP: 94111-3834
                                                                                                                                                                 COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 61; DB 14;
Pred. No. 0.0044;
); Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 61;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.0044;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 16;
                                                        Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                plus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Сарв
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
Search completed: February 3, 2003, 09:34:08 Job time: 8.57143 secs
                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polypeptide"
;
SEQUENCE DESCRIPTION: SEQ ID NO: 45:
US-09-724-890-45
                                                                                                                                                                                                                                                                   OTHER INFORMATION: Description of Artificial Sequence:Plant-optimized; OTHER INFORMATION: pre S1/S2.
PCT-US99-31020-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
PCT-US99-31020-41
                                                                                                                                                                  Ouery Match 100.0%; Score 61; DB 1; Length 164; Best Local Similarity 100.0%; Pred. No. 0.0074; Matches 12; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                             Sequence 41, Application PC/TUS9931020
GENERAL INFORMATION:
APPLICANT: Boyce Thompson Inst. for Plant Res. at Cornell
TITLE OF INVENTION: Expression of Immunogenic Hepatitis B Surface Antigens
TITLE OF INVENTION: in Transgenic Plants
FILE REFERENCE: 4868/85428
CURRENT APPLICATION NUMBER: PCT/US99/31020
CURRENT APPLICATION NUMBER: PCT/US99/31020
CURRENT FILING DATE: 2000-04-10
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 41
LENGTH: 164
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.0%; Score 61; DB 21; Length 102; Best Local Similarity 100.0%; Pred. No. 0.0044; Matches 12; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence PEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (415) 576-0300 INFORMATION FOR SEQ ID NO: 45; SEQUENCE CHARACTERISTICS;
                                                                                149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 PLSSIFSRIGDP 12
|||||||||||
41 PLSSIFSRIGDP 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION: 424

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/09/021,769
FILING DATE: 11-FEB-1998
ATTORNEY/AGENT INFORMATION:
NAME: Smith, Timothy L.
REGISTRATION NUMBER: 018097-021500US
TELEPRENCE, 04515-767-0200
TELEPRENCE, 44515-767-0200
                                                                                                                      1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: peptide FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: Peptide LOCATION: 1..102 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 102 amino acids
TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      antigen (HBsAg) (PreS2 plus S
regions)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "truncated Hepatitis B
                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```



```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                       Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein -
                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
80
                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  geq
geq
      protein search, using sw model
                                                                                                                                                                                                                                                                                  SPTREMBL_21:*

1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_blage:*
10: sp_blant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_virus:*
14: sp_unclassifit
15: sp_bacteriap:*
16: sp_bacteriap:*
17: sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length: 0 length: 2000000000
                         100.0
100.0
100.0
100.0
100.0
                                                                                                                                            100.0
                                                                                                                                                                                     Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum Match 0%
Maximum Match 100%
Listing first 45 sm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        February
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Copyright
                                                                                                                                                                                                                                                                                        sp_rodent:*
sp_virus:*
sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_rvirus:*
sp_bacteriap:*
                                                                                                                                                                                                                                                                                                                                                                    sp_organelle:*
sp_phage:*
                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                              invertebrate: *
     163
281
281
281
378
378
389
389
389
389
389
389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.3 (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2003,
   Q911C1
Q914F19
Q41750
Q40XP8
Q67944
Q67944
Q67944
Q6837
Q96840
Q96840
Q90772
Q90MX3
Q91C55
Q91C55
Q91C55
Q91C57
Q91C57
Q91C57
                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09:21:12 ; Search time 1.60976 Seconds (without alignments)
1535.988 Million cell updates/sec
                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               671580
O9lic1 hepatitis |
O9wpi9 hepatitis |
O4l750 hepatitis |
O4l750 hepatitis |
O8gxp8 hepatitis |
O67954 hepatitis |
O67954 hepatitis |
O67954 hepatitis |
O96837 hepatitis |
O90672 hepatitis |
O90772 hepatitis |
O90775 hepatitis |
O90775 hepatitis |
O91755 hepatitis |
O91755 hepatitis |
O91757 hepatitis |
O91759 hepatitis |
O91759 hepatitis |
O91763 hepatitis |
O91764 hepatitis |
O91775 hepatitis |
O91775 hepatitis |
O91775 hepatitis |
O91775 hepatitis |
                                                                                                                                                                                 Description
 RESULT 1
Q911
ID Q911
AC Q911
DT Q1-D
DT 01-D
DT 01-M
DE Pre-
OS Hepa
OC Viru
OC Viru
OC VIRU
OC STRA
RA Huar
RT "Pre
RC STRA
RA Huar
RT "Pre
RT SUBIT
RMBI Inte
DR EMBI Inte
DR Pfan
FT NON
SQU SEQU
                                                                                             밁
                                                                                                            Ś
                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN=N314-1;
                                                                                            41
```

4.	44	L	42	41	4		ω 0	37	36	U	4	i isi	32) 	30	29	28	27	26	25	24	23	22	21	20) \		17
59	59	59	5 9	59	5	ı U	5 9	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	U	5 9	59
		.01	. 5	.51	.51	. 5	96.7	.50	•	٠.		.0			რ	•	•	9	.0	•	9	9	ð	9	9	6	9	9
ហ	55	55	55	SS	55	S	S.	55	ភូភូ	55	55	S	ភូ	55	55	55	55	ភូ	55	55	55	55	55	55	SS	ភ	55	55
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Q9IXA1	Q9IXA3	Q9IXA4	Q9IXA6	Q9IXA7	Q9IXA9	Q9IXB0	Q9IXB2	Q9IXB3	Q9IXB5	Q9IXC2	Q91XC4	Q9IXC5	Q9IXC7	Q9IXC8	Q9IXD0	Q9IXD1	Q9IXD3	Q9IXD4	Q9IXD6	Q9IXD7	Q9IXD9	Q9IXE0	Q9IXE2	Q9IXE6	Q9IXE8	Q9IXE9	Q9IXF1	Q9IXF2
Q9ixa	Q9ixa	ū.		Q9ixa	Q9ixa	Q9ix	Q9ixb2	091x	Q91x	O9ixc	Q9ix	09ixc	Q9ix	Q9ix	Q9ix	x teo	09ixd3	091x	091x	09ix	09ix	09 i x	Q9ix	O9ixe	09ix	Q9ix	Q9ixf	Q9ix
_	w	4	σ	7						N	**													9	œ	9	_	N
citi	titis	titis	ולופ	titis	titis	patitis	itis	itis	00 (201111	itis	1 1 8	itis	citis	titia	titis	patitis	1	patitie	patitis	paritie	Dat it is	patitis	1	titis	titie	itis	titig

ALIGNMENTS

```
ODITCI

ID Q91IC1

AC Q91IC1,
AC Q91IC1,
AC Q91IC1,
AC Q91IC1

PRELIMINARY; PRT; 57 AA.

AC Q91IC1,
DT 01-DEC-2001 (TERMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TERMBLrel. 20, Last annotation update)
DT 01-DEC-2001 (TERMBLrel. 20, Last annotation update)
DT 01-MAR-2002 (TERMBLR).

AC OVITUSES; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.

RN (11-TAXID=10407;
RN (12-TAXID=10407;
RN (13-TAXINAN)14-1;
RR STRAINAN)14-1;
RR STRAINAN)14-1;
RR Huangfu J., Dong H.;
RR Huangfu J
```

```
SO DE REPRESENTATION OF THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                닭
유
                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                            RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 12; Conserv
                                                                                      OBOXP8;
O1-JUN-2002 (TrEMBLrel. 2
O1-JUN-2002 (TrEMBLrel. 2
O1-JUN-2002 (TrEMBLrel. 2
Middle surface antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Large S protein (F
Hepatitis B virus.
Viruses; Retroid v
         Hepatitis B virus.
Viruses; Retroid vi
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                041750
041750;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. STRAIN=MF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (MAR-1999) to the EMBL/Ge
EMBL; AF136461; AAD44771.1; -.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus.
Viruses, Retroid v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Middle S protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JAN-1998
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kidd-Ljunggren K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bowyer 8., van Staden L., Kew M.C.,
Bowyer 8., van Staden L., Kew M.C.,
"A unique segment of the hepatitis
in isolates from South Africa.";
J. Gen. Virol. 78:1719-1729(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Nosocomial
                                                                        PRES2
                                                                                                                                                                                       ОВОХРВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   J. Gen. Virol. 78:1719-1729(1997).
EMBL; U87737; AAC58018.1; -.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; VMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=97368435; PubMed=9225049;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                 12; Conserv
                                     Retroid viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                163 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 (TrEMBLrel.
3 (TrEMBLrel.
2 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ã,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              viruses; Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12
                                                                                                                                                                                                                                                                                     52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  163
17331 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                       31153 MW;
                                                                                                                                                                                                                                                                                                                                                                              100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20,05
                                                                                                              21,
21,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of Hepatitie
                                                                                                                                                                                                                                                                                                                                                                              . 04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepadnaviridae; Orthohepadnavirus
                                       Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
Last seq
Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL/GenBank/DDBJ databases
                                                                                                              Created)
Last seq
Last anno
                                                                                                                                                                                                                                                                                                                                                              ç,
                                                                                                                                                                                                                                                                                                                                                                                Score 61;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 61; DB 12;
Pred. No. 0.00061;
                                                                                                                                                                                                                                                                                                                                                                                                                                         85D90E7B5F2C9289 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38D20BE460F0BD24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              annotation
                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sim J.G.;
virus gro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B Virue
                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                  0.0011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ā
                                                                                                                                                                                                                                                                                                                                                                                                    DB 12;
                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   group
                                                                                                                  update
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Through Multiple
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ×
                                                                                                                                                                                                                                                                                                                                                                                                    Length 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ö
                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
```

```
GREAT CRESSULT CRESSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SORRI RARRE
RESULT 6
G67954
ID 0679
AC 0679
AC 0679
AC 01-N
DT 01-N
DT 01-N
DT 01-N
DT 11-N
DT 11-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1996
01-NOV-1996
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatlil ...
Hepatlogy 0:0-0(0).
EMBL; AJ34411; CAC87014.1; -.
EMBL; AJ34411; CAC87014.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jeantet D., Chemin I., Mandrand B., Zoulim F., Trepo C., "Characterization of two Hepatitis B virus populations is Hepatitis B surface antigen-negative patient.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. Kay A.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q67954;
Q67954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

Lai M.E., Mazzoleni A.P., Porru A., Balestrieri A.;

Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases

EMBL, X85254; CAA59510.1; -.

Interpro; IPR000349; Hepvir_surfag.

Pfam; PF00695; VMSA; 1.557 MJ. DAJTOBOGEPB62ENS (BC64)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRES1/PRES2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q67944;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q67944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted
                                                                                                              HBV surface proteins (Fragment).
Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 01,
01-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                 Ptam; PI
                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149
      SEQÜENCE
                                                             InterPro; IPR000349; Hepvir_surfAg
Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIPSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ch 100.0%;
1 Similarity 100.0%;
12; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (AUG-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     milarity 100.0%; conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     378 AA;
      378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                    378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
      ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     41257 MW; D4370B06FFB625D5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ៥
         41356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20,01
         ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 61;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 61;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37234BBD949B3B03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
            FC18839606E121CD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.0015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.0011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                  Orthohepadnavirus
                                                                                                                                                                                                                      from
                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CRC64;
               CRC64;
                                                                                                                                                                                                                   patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 378;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           isolated
                                                                                                                                                                                                                         with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT 8
Q96840
ID Q968
AC PRE-
CO Viru
CO VIVI
CO VICT
CO PRE-
CO PRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
Q96837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 12; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1997 (TrEMBLrel. 02, C
01-FEB-1997 (TrEMBLrel. 02, La
01-MAR-2002 (TrEMBLrel. 20, La
Large S protein (Fragment).
PRE-S/S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=97049068; PubMed=8893798;
Moraes M.T., Gomes S.A., Niel C.;
"Sequence analysis of pre-5/S gene of hepatitis B v
genotypes A, D, and F isolated in Brazil.";
Arch. Virol. 141:1767-1773(1996).
EMBL; U55224, AAB87470.1;
InterPro; IPR000349; Hepvir_surfAg.
Pfam; pr00655; vWSA; 1.
NON TER 383 383
SEQUENCE 383 AA; 41942 MW; 6E101F3B7471B6B1 CRO
                                                                                 Pfam; PF
                                                                                                                                        "Sequence analysis of pre-$/$ gene of hepatitis B genotypes A, D, and F isolated in Brazil."; Arch. Virol. 141:1767-1773(1996).

EMBL; U55227; AAB47473.1; -.
                                                                                                                                                                                                                  STRAIN-BRJ;
MEDLINE=97049068; PubMed=8893798;
MEDLINE=97049068; PubMed=8893798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q96840;
Q96840;
                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                         Viruses; Retroid viruses;
                                                                                                                                                                                                                                                                                                                                                                Hepatitis B virus.
                                                                                                                           InterPro
                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q96837
Q96837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-BRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLSSIFSRIGDP 160
                                                                                                    Pro; IPR000349; Hepvir_surfAg. PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S protein (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                               383 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7 (TrEMBLrel.
7 (TrEMBLrel.
2 (TrEMBLrel.
                                                                                    383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
    100.0%;
                                                            42018 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41942 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .04;
                                                                                                                                                                                                                                                                                                                                   Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 61;
Pred. No. (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 61;
Pred. No.
                                                        341AB53B7911BBDC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6B101F3B7471B6B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
  No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 12;
0.0015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 12;
0.0015;
DB 12;
0.0015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                Length 383;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 383;
                                                                                                                                                                                               PLITA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 378;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       virus strains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                               strains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                             of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     œ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
ACCORDANCE OF THE PROPERTY OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXMM60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                             InterPro; IPR00
Pfam; PF00695;
CHAIN 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9WMX3;
01-NOV-1999
01-NOV-1999
01-MAR-2002
                                         SEQUENCE
                                                                   Submitted (JAN-1999) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ131956; CAA10540.1; -.
InterPro; IPR000349; Hepvir surfAg.
Pfam; PF00695; VMSA; 1
                                                                                                                                     Petzold D.R.;
Submitted (JA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 090772;
090772;
01-NOV-1998
01-NOV-1998
01-MAR-2002
                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN=1;
                                                                                                                                                                                                                       MEDLINE-99238050; PubMed=10223539;
Petzold D.R., Tautz B., Wolf F., Drescher J.;
"Infection chains and evolution rates of Hepatitis B Virus in cardiac transplant recipients infected nosocommially.";
J. Med. Virol. 58:1-10(1999).
                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                            S.
Hepatitis B virus.
Retroid viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9WMX3
                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Characterization of unusual escape isolated from a hepatiiis B surface J. Virol. 72:7692-7696(1998).
EMBL; AJ003116; CAA05872.1; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus.
Viruses, Retroid viruses,
NCBI TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIRALIERDE'S,
MEDLINE=98362187; PubMed=9696878;
Tratha S. Monazahian M., Boehme I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. STRAIN=REF2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S GENE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Surface protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nterPro; IPR000349; Hepvir_surfAg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .بر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                           389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                           ΑĄ,
                                                               389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                         42708 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42682 MW; 575E7223D068CDDB
     100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12,
12,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20,
                                                                                                                                                                                                                                                                                                                                                                                                Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
Last sequence up
Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                         SURFACE ANTIGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 61; I
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT,
                                     6AA08B85DFE5B99C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
 61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antigen-negative subject.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                variants of hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Thomssen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             389
 멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. 0016;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₿
12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

Best

Local

. Similarity 12; Conser

llarity 100 Conservative

. 04: 0

Pred. No. 0.0 , Mismatches

. 0.0016;

Indels

0

Gaps

0

Matches

```
QSUSUED CONTROL OF THE CONTROL OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91C55,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q91C52;
Q91C52;
01-DEC-2001;
01-DEC-2001;
01-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-DEC-2001 (TYEMBLrel. 19, Created)
01-DEC-2001 (TYEMBLrel. 19, Last sequence update)
01-DEC-2002 (TYEMBLrel. 20, Last annotation update)
Large/middle/small S proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Owiredu W.K.B.A., Kramvis A., Kew M.C.;
submitted (AUG-2000) to the EMBL/GenBank/DDBJ
EMBL; AF297619; AAK97179.1; -.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
SEQUENCE 389 AA; 42580 MW; F4336E04992CE6F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Owiredu W.K., Kramvis A., Kew M.C.; Hepatitis B virus DNA in serum of healthy black positive for hepatitis B surface antibody alone: with recombination between genotypes A and D."; J. Med. Virol. 64:441-454(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=21361467; PubMed=11468728;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                               Owiredu W.K., Kramvis A., Kew M.C.; "Hepstitis B virus DNA in serum of healthy black African adults positive for hepatitis B surface antibody alone: possible associant recombination between genotypes A and D."; J. Med. Virol. 64:441-454(2001).
                                                                                                                                                                                                                                                                   MEDLINE=21361467; PubMed=11468728;
Owiredu W.K., Kramvis A., Kew M.C.
                                                                                                                                                                                                                                                                                                                                                                                      Large/middle/small S proteins.

Hepatitis B virus.

Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.

NCBI_TaxID=10407;
Owiredu W.K.B.A., Kramvis A.,
Submitted (AUG-2000) to the E
EMBL; AF297620; AAK97183.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        149
                                                                                                STRAIN=57
                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                     STRAIN-57;
                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLSSIPSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel. 19, Created)
(TrEMBLrel. 19, Last sequence update)
(TrEMBLrel. 20, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42580 MW; F4336E04992CE6E2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                               ., Kew M.C.;
EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 61;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0016;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases
                                                    databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         African adults possible association
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   389;
                                                                                                                                                                                                                              association
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT
Q67876
AC Q67876
AC Q667876
AC Q66787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ន្ត្រី
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 14
Q8QXP9
                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
Query Match
Best Local Similarity
Matches 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q67875;
Q67875;
Q1-NOV-1996
Q1-NOV-1996
Q1-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Sequence analysis of HBV genomes isolated from negative chronic liver disease."; Submitted (MAR-1992) to the EMBL/GenBank/DDBJ da: EMBL; X65258; CAA46353.1; ... InterPro; IPR000349; Hepvir_surfAg. Pfam; PF00695; vMSA; 1... SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000349; Hepvir_surfAg. Pfam; PF00695; vMSA; 1. SEQUENCE 389 AA; 42937 MW; 1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q8QXP9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-2002 (TrEMBLrel. 21, 01-JUN-2002 (TrEMBLrel. 21, 01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149
                                                                                                                                                                                                                                                                                                                                    Hepatitis B virus.
Viruses; Retroid v
                                                                                                                                                                                                                                                                                                           Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                Hepatitis B surface antigen-negative Hepatology 0:0-0(0). EMBL; AJ344117; CAC87013.1; -.
                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                        Submitted (AUG-2001)
                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                Large surface antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                  SEQUENCE
                                                                                                                                     BOUENCE FROM N.A.

Characterization of two Hepatitis B virus po
Characterization of antigen-negative patient.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match
                                                                                                                                                                                                                                                          A.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLSSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l Similarity
12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TrEMBLrel.
(TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; ilarity 100.0%; Conservative 0
                                                                                  389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
    100.0%; Score 61; DB 12; ilarity 100.0%; Pred. No. 0.0016; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                  42764
                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20,
20,
                                                                                                                                                                                                                                          the EMBL/GenBank/DDBJ databases
                                                                                    X.
                                                                                                                                                                                                                                                                                                                                        Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 61; DB
Pred. No. 0.0
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 61; DB 12;
Pred. No. 0.0016;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1709DFD7D5E01066 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                      9AC5A4D46BB73632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.0016;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      띪
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ⋛
                                                                                                                                             n F., Trepo C.,
s populations in
ent.";
                                                                                                                                                                                                                                                                                                                                            Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12;
                                             12;
                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A., Porru
patients w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                      CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 389;
                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                    ., Kay A.;
isolated
                                                   389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              нввад
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                      from
            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
              0
```

```
Oy | PLSSIFSRIGDP 12
Db 149 PLSSIFSRIGDP 160

RESULT 15
Q91IC3
ID 091IC3 | PRELIMINARY; PRT; 49 AA.
DT 01-DEC-2001 (TERMBLIFE1. 19, Created)
DT 01-DEC-2001 (TERMBLIFE1. 20, Last sequence update)
DT 01-DEC-2001 (TERMBLIFE1. 20, Last sequence update)
DT 01-DEC-2001 (TERMBLIFE1. 20, Last annotation update)
DC Viruses, Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
NCSITAXID-10407;
RN [1]—TAXID-10407;
RN [1]—TAXID-10407;
RP SEQUENCE FROM N.A.
RC STRAIN-702-4;
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
RT "Preliminary Study on Pres3 Region of Hepatitis B Virus.";
```

•	·		
E			
	•		
		c	
			•
	·		

```
~~)
```

```
Database :
                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run on:
     SPIREMBL 21:*

1: sp_archea:*
2: sp_bacteria:*
3: sp_fungl:*
4: sp_fungl:*
5: sp_invertebrate
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_votent:*
12: sp_virus:*
13: sp_vertebrate:
14: sp_unclassifit
15: sp_bacteriap:*
16: sp_bacteriap:*
17: sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           February 3, 2003, 09:21:12; Search time 46.5488 Seconds (without alignments) 1535.988 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MGRGDGAGAFGLGFTPPHGG.....SILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-890-752A-1
1929
sp_organelle:*
sp_phage:*
sp_plant:*
sp_rotant:*
sp_virus:*
sp_vertebrate:*
sp_wrlassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                             invertebrate: *
                                                                                                                                                                                                                                                                                                                                                                                                                                               671580
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

ß	
₹	
3	
昱	
H	
떴	

16	15	<u>+</u>	: :		: E	Ė		α	· .	ι σ	ı u	ء د	٠ ن	۰,	. ر	NO.	Result	
1861	1861	1864	1864	18/4	18/5	1875	1875	1876	B/BT	1879 1879	F887	1883	1885	1888	1901	Score		
96.5	96.5	96.6	96.6	97.1	97.2	97.2	97.2	97.3	97.4	97.4	97.6	97.6	97.7	98.4	98.5	Match Length	Query	*
389	389	389	989	389	389	389	389	389	389	389	389	389	389	389	389			
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8		
Q67879	092921	Q9WNS1	Q9QAF9	Q9QAF2	Q8QXP9	Q8QXQ3	Q67893	Q91F39	Q9QMH6	Q67920	Q67914	Q67871	Q9PWW6	Q96843	Q9WJC4	ID		SUMMARIES
		_	9		φ	Ξ.	_	Ξ.	_			_	hepatitis	hepatitis	Q9wjc4 hepatitis b	Description		

44.		ا. د	اب د		44.	4.	w	w	ω	نيا	نيا د	į (į.	با د	ı (ı		ı (ı	, ,	, a	JK) K) N) K	· K) N) -		. ,
		100/1					9 1788					1799							1016					184	184	184	100	1 6	
91.9													93.	93.	94.	94	94	4	4.	4.	94	94.	9 5				σ	96.1	١,
400	685	1 L) (A		90	344	343	399	387	378	389	378	389	382	18.0	389	389	685		389	385	400	383	400	383	383	289	985	
12	12	1	2	, ,	3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	:
Q9E6T8	Q9QAWO	Q91R27	Q91T77	CATACO	Option	091TA6	Q91T59	Q9QAW7	Q91A30	Q67944	Q67875	Q67954	Q67956	Q67886	Q96841	Q67890	Q91C55	QIMQ6D	Q96836	Q91C52	092919	Q913A6	Q96840	Q8V1J1	Q96837	Q96838	Q9WMX3	090772	KUCCUU
Q9e6t8	O9gaw0	Q91r27	Q91t77	. QSTr25	VAT-00	2011	091759	09gaw7	O91a30	067944	Q678 7 5	Q67954	067956	Q67886	Q96841	Q67890	Q91c55	Q9qmi(Q96836	Q91c52	092919	Q913a6	Q96840	Q8v1j1	Q96837	Q96838	Q9wmx3	090772	720077
hepatit	hepatitis	itig	hepatitis	hepatitis	перастств	111111111111111111111111111111111111111	מייי לי לי מיייי	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitis	hepatitie	hepatitis	2 hepatitis b	nepacicie						

ALIGNMENTS

Qy 126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS	Qy 66 AMQWNSTTEHQTLQDERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI	OY 6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLFANPPDASTNRQSGRQPTPLSPPLRNTHPQ	Query Match 98.5%; Score 1901; DB Best Local Similarity 100.0%; Pred. No. 1.8e Matches 342; Conservative 0; Mismatches		1. 185:208-212(1985). 2496; CAB41701.1;	Bichko V., Dreilin "Subtype ayw varia	 OS Hepatitis B virus. OC Viruses; Retroid viruses; Hepadnaviridae; Or OX NCBI_TaxID=10407; RN [1]	01-NOV-1999 (TrEMBLrel. 12, Creat 01-NOV-1999 (TrEMBLrel. 12, Last 01-MAR-2002 (TrEMBLrel. 20, Last Pre-S and S proteins. S.	RESULT 1 Q9WJC4 AC OGWIC4 PRELIMINARY; PRT; 389 AA. AC OGWIC4.
	NPVPTTVSPISSIFSRIGDPALNMENI 125	PPPASTNRQSGRQPTPLSPPLRNTHPQ 65	1; DB 12; Length 389; 1.1.8e-154; ches 0; Indels 0; Gaps	CFD2BADF6 CRC64;		umpen P.P., Gren E.; rus.";	lae; Orthohepadnavirus.	ed) sequence update) annotation update)	

```
OS OS SER RESULT OS SER RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                       ş
                                                                                                                                                                 밁
                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                   Ś
                                                                                맑
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Simi
Matches 341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q96843 PRELIMINARY;
Q96843;
01-FEB-1997 (TrEMBLrel. 0
01-FEB-1997 (TrEMBLrel. 0
01-MAR-2002 (TrEMBLrel. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Repp R.;
Submitted (AUG-1996) to the EMBL/GenBank/DDBJ
EMBL, Y07587; CAA68861.1; -.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PP00695; VMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
STRAIN=AYW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIINE=97332377; PubMed=9188611;
Stoll-Becker S., Repp R., Glebe D., Schaefer
Lampert P., Gerlich W.H.;
"Transcription of hepatitis B virus in periple cells from persistently infected patients.";
J. Virol. 71:5399-5407(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis B virus (subtype Viruses; Retroid viruses; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                            108
348
                                        306
                                                                                288
                                                                                                                           246
                                                                                                                                                                      228
                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                           168
                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                                                                                                                                                                                                                  48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLSPTVMLSVIMMMYWGPSLYSILSPELPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFYQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTPAQGTSMYPSCCCTKDSDGNCTCIPIDSSWAPGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                               GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQFTPLSPPLRNTHPQ
                      GLSPTVWLSVIMMMYWGPSLYSILSPFLFLLFIFFCLWVYI 347
                                                                              TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                    CPPTCPGYRWMCLRRFIIPLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                               CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                         TSGPLGPLLVLQAGPFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                  TSGELGPLLVLQAGEFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                            AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                     AMQMNSTTFHQTLQDERVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDFALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98.4%;
llarity 99.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42744 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22,02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1898; DB 12;
Pred. No. 3.3e-154;
1; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
; D8D4B1B9B92EE57B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Schaefer S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    peripheral blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
    389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kreuder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65
                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                  227
                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
OSPAWAG
OSSAGNA
OSPAWAG
OSSAGNA
OSSAGN
RESULT 4
[067871]
[067871]
[067871]
[0701-N
[0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-HBV/95-1758, AND HBV/94-11066;
Hannoun C., Horal P., Lindh M.;
Submitted (JAN-1999) to the EMBL/GenBan
EMBL; AF121241; AAF24674.1; -.
EMBL; AF121240; AAF24667.1; -.
Interpro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
SEQUENCE 389 AA; 42814 MW; CD189853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9PWW6;
Q9PWW6;
01-MAY-2000
01-MAY-2000
01-MAR-2002
                                                                                    Q67871
Q67871;
Q67871;
Q67872;
Q67872;
Q67873;
Q1-NOV-1996 (TrEMBLrel. Q1,
Q1-NOV-1996 (TrEMBLrel. Q1,
Q1-MAR-2002 (TrEMBLrel. 20,
Pre S1/pre S2/S ORF.
Hepatitis B virus.
Viruses; Retroid viruses; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN-HBV/95-1758, AND HBV/94-11066;
MEDLINE=20109034;
Hannoun C., Horal P., Lindh M.;
"Long-term mutation rates in the hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Large S protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                     NCBI_TaxID=10407;
      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gen. Virol. 81:75-83(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ANOMNISTTEHOTLODERVRGLYEPAGGSSSGTVNPVETTVSEISSIFSRIGDEALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLSPTVMLSVIMMMYMGDSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TSGELGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMOWNSTTEHOTLODERVRGLYFPAGGSSSGTVNEVPTTVSHISSIESRIGDPALMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSMAFGKFLMEMASARFSMLSLLVPFVQMFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYDSCCCTKDSDGNCTCIDIDSSWAFGKFLWEWASARFSWLSLLVDFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CPPTCPGYRMNCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCBLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     339;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
      FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TrEMBLrel.) (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42814 MW; CD1898538A4A2C0C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97.7%;
99.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13,
13,
20,
                                                                                                                                                                                               200
                                                                                                    Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1885; DB 12;
pred. No. 4.2e-153;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ
                                                                                                                                                                                                   Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                                                                                                                                                                                                                      389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ŗ
                                                                                                                                                                                                                                                                                                                                      B
                                                                                                        Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W
                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             227
```

```
RESULT Q67914
AC Q7 DT 0 0 DT 0 
                   밁
                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SORRERRA
                                                                                                      Query Match
Best Local Similarity
Matches 337; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Simi
Matches 338;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q67914
Q67914;
Q67914;
01-NOV-1996 (TrEMBLrel. 0:
01-NOV-1996 (TrEMBLrel. 0:
01-MAR-2002 (TrEMBLrel. 2:
                                                                                                                                                                            SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
Karayiannis P.;
Submitted (MAY-1996) to the EMBL/GenBank/DDBJ
EMBL; X97848; CAB66425.1; -.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; VMSA; 1.
Pfam; PF00695; VMSA; 1.
SEQUENCE 389 AA; 42717 MW; 495EF28627FBF62
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE-97025699; PubMed=8871878;
Alexopoulou A., Karayiannis P., Hadziyannis S.J.;
"Whole genome analysis of hepatitis B virus from 4 cases with fulminant hepatitis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pre-S1 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lai M.E., Mazzoleni A.P., Balestrieri A., Welis A., Porru A.; "Sequence analysis of HBV genomes isolated from patients with negative chronic liver disease."; Submitted (MAR-192) to the EMBL/GenBank/DDBJ databases.

EMBL; X65257; CAA46349.1; -.

InterPro; IPR000349; Hepvir_surfAg.

Pfam; PP00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     306
                40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108
                                                           σ
                                                                                                                                                                                                                                                                                                                                                                        Viral Hepat. 3:173-181(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GLSPTVWLSVIWMWWYMGPSLYSILSPFLPLLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ĠĹŚPTVWĽSVÍWMMYWĠPŚĹYŚIĹŚPFĹPĹĹPÍFFĊĹWVYÍ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CPPTCPGYRWMCLRRPIFLFILLLCLIPLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLDVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMOWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSDISSIFSRIGDPALNWENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASHLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAFGLGFTÞÞHGGLLGWSÞQAQGILQTLÞANÞÞÞASTNRQSGRQÞTÞLSÞÞLRNTHÞQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                   42717 MW; 495EF28627FBF628 CRC64;
                                                                                                                     97.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97.6%;
98.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42756 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last
Last
                                                                                                 ω
                                                                                          Score 1883; DB 12;
Pred. No. 6.2e-153;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1883; D
Pred. No. 6.2e
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        977025C7DED114A1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                          DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .2e-153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 12;
                                                                                                                                                                                                                                                                           databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389
                                                                                                                                     Length
                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389;
                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HBaAg
                                                                                             Gaps
                                               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
Ş
                                                   밁
                                                                       S
                                                                                                 片
                                                                                                                     Ś
                                                                                                                                               밁
                                                                                                                                                                  Ś
                                                                                                                                                                                              В
                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                           Matches 337;
                                                                                                                                                                                                                                                                            Karayiannis P.;
Submitted (MAY-1996) to the EMBL/GenBank/DDBJ databases.
Submitted (MAY-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; X97849; CAA66432.1; -.
InterPro; IPRO00349; Hepvir_surfAg.
Pfam; PP00695; vMSA; 1.
SEQUENCE 389 AA; 42690 MW; FD05FA0251E162F5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q67920;
Q67920;
Q1-NOV-1996
Q1-NOV-1996
Q1-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=97025699; PubMed=8871878;
Alexopoulou A., Karayiannis P., Hadziyannis
"Whole genome analysis of hepatitis B virus
fulminant hepatitis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pre-S1 protein.
Hepatitis B virus.
Viruses; Retroid viruses;
NCBI TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                               STRAIN=PRE-CORE VARIANT;
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
STRAIN=PRE-CORE VARIANT;
     288
                            246
                                                                                                  168
                                                                                                                        126
                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               306
                                                                                                                                                                      99
                                                                                                                                                                                             48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    108
                                                                                                                                                                                                                    6
                                                                                                                                                                                                                                                                                                                                                                                                    Viral Hepat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPFVQWFV
                                            CPPTCPGYRWWCLRRFIIFLFILLLCLIFLLVLLDYQCMLPVCPLIFGSSTTSAGPCRTC
                                                        CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGWLPVCPLIPGSSTTSTGPCRTC
                                                                                          TSGFLGPLLVLQAGFFLLTRILTIPQSLDSW#TSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                         TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                       AMOWNSTTFHQTLQDFRVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDFALNMENI 125
                                                                                                                                                                                                       GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                         AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALNMENI
                                                                                                                                                                                        GAGAFGLGFTPPHGGLLGWSPQAQGIIQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVMLSVIMMMYMGPSLYSILSPELPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRWMCLRRFIFTLILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPPTCPGYRMMCLRREIIFLFILLLCLIFLLVILLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPVLNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6 (TrEMBLrel. 01,
6 (TrEMBLrel. 01,
2 (TrEMBLrel. 20,
                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                  3:173-181 (1996)
                                                                                                                                                                                                                                                 97.4%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                         2
7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                       Score 1879; DB 12;
Pred. No. 1.4e-152;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                         from
                                                                                                                                                                                                                                                                                                                                                                                                                                   ن.
                                                                                                                                                                                                                                                                                                                                                                                                                       4 cases
                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                         with
                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                     Gaps
                      305
                                              287
                                                                     245
                                                                                            227
                                                                                                                   185
                                                                                                                                          167
                                                                                                                                                                                         107
                                                                                                                                                                                                               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                      <u>,</u>
```

á

306

347

```
RESULT

OPENIES

OPEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
  RESULT
Q91F39
ID QS
AC Q9
DT 01
DT 01
                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.

STRAIN=GENOTYPE D;

KMEDLINE=89010694; PubMed=3171552;

KMEDLINE=89010694; PubMed=3171552;

KMEDLINE=89010694; PubMed=3171552;

KMEDLINE=89010694; PubMed=3171552;

KMEDLINE=89010694; Nakugawa H., Sastrosoewignjo R.I., 1

A Miyakawa Y., Mayumi M.;

"Typing hepatitis B virus by homology in nucleotide sequent of the surface antigen subtypes.";

T comparison of surface antigen subtypes.";

J. Gen. Virol. 69:2575-2583(1988).

J. Gen. Virol. 69:2575-2583(1988).

R InterPro; IPR000349; Hepvir_surfAg.

R InterPro; IPR000349; Hepvir_surfAg.

R Pfam; PP00695; vMSA; 1.

Q SEQUENCE 389 AA; 42720 MW; 4D680B45D294FAEE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9QMH6
Q9QMH6;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PreSI/preS2/S envelope.

PRESI/PRES2/S.

Hepatitis B virus.

Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.

NCBI TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Okamoto H.;
Submitted (
Q9IF39;
Q9IF39;
01-OCT-2000
01-OCT-2000
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N
STRAIN=GENOTYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                          348
                                                                                                                                                                                                                                                     306
                                                                                                                                                                                                                                                                                                    288
                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                            228
                                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMOMNSTTFHOTLODERVRGLYFFAGGSSSGTVNEVETTVSEISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                  GLSPTVWLSVIWMMWYMGPSLYSILSPELPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                          TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGAFGLGFTPPHGGLLGWSPQAQGIIQTLPANPPPASTNRQSGRQPTPLSPPLRTTHPQ
                                                                                                                                                                                                               GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIPFCLWVYI
                                                                                                                                                                                                                                                                                                  TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             337;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (OCT-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
    (TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                               PRELIMINARY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽.₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97.41;
98.51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13,
20,
    15,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
Last sequence update)
Last annotation updat
  Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1878; DB 12,
Pred. No. 1.7e-152;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sastrosoewignjo R.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           389
                                                                                                 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleotide sequence:
                                                                                                 ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 12;
                              update)
       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          databases
                                                                                                                                                                                                                 389
                                                                                                                                                                                                                                                            347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ≾
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
SOR DE REPRESENTATION
                                                                          RESULT 9

Q6783

ID Q678

AC Q678

AC Q678

AC Q678

DT Q1.-N

DT Q1.-N

DT Wire

GN SURF

GN SURF

GN NCBI

RN [1]

R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Simi
Matches 337;
Query Match
Best Local Similarity
Matches 336; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PreS1/preS2/S envelope.
Hepatitis B virus.
Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yan L., Chen J.J., Hou J.L., Wang Z.H.;
"First Chinese HBV strain: genotype D complete
Submitted (JUN-2000) to the EMBL/GenBank/DDBJ d
EMBL, AF280817; ARP81608.1; -
Interpro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; VMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996
01-NOV-1996
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN=HBV-D1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                Hepatitis B virus.
Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                               SURFACE PROTEIN S.
                                                                                             "Molecular cloning and sequencing of two complisolates of Human Hepatitis B Virus.";
Submitted (AUG-1994) to the EMBL/GenBank/DDBJ
EMBL; Z35716; CAA84788.1;
InterPro, IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
CHAIN 164 389 SURFACE PROTEIN S
CHAIN 164 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q67893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 067893
                                                                                                                                                                                                                                                            STRAIN-AYW4
                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108
                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48
                                                                                                                                                                                                                                      lucienniczak A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAYGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGAPGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLSPTVMLSVIMMMYMGPSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMOMNISTTFHOTLODERVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTPAQGTSMYPSCCCTKDSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ċ₽₽TĊ₽ĠŶŖ₩MĊĹŖŖ₽ĬĬŦĹ₽ĬĹĹĹĊĹĬŦĹĹVĹĹĎŶŎĠŃĹ₽ŶĊ₽ĹĬPĠŚŚŦŦŜŦĠ₽ĊŔŦĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. 01, (TrEMBLrel. 01, (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                389
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N.A.
                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42784 MW; F53CCFC6A0C1F072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97.3%;
98.5%;
                                                                                  42762
                      97.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepadnaviridae; Orthohepadnavirus
                                                                                MW.
                                                                                                                                                                                                                                                                                                                                           Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲.
ت
                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1876;
Pred. No. 2.
      2
    Score 1875; DB 12;
Pred. No. 3e-152;
2; Mismatches 4;
                                                                                SURFACE PROTEIN S.; 5D27F0BA97A825D5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6; DB 12;
2.5e-152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₹
                                                                                                                                                                                                                           complete
                                                                                                                                                                                                                                                                                                                                               Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e sequence report.";
databases.
                                                                                                                                                                                      databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                             Length
                                                                                                                                                                                                                           genomes
            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389;
                                                 389;
                                                                                                                                                                                                                               얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
            0
                                                                                                                                                                                                                               polish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
ð
                                                   Ş
                                                                                          ঠ
                              밁
                                                                         밁
                                                                                                                    문
                                                                                                                                       δ
                                                                                                                                                                밁
                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 337; Conser
                                                                                                                                                                                                                                             STRAIN-HBSAG NEGATIVE PATIENT GX27;

Jeantet D., Chemin I., Mandrand B., Zoulim F., Trepo C., Kay A.;

"Characterization of two Hepatitis B virus populations isolated f
Hepatitis B surface antigen-negative patient.";

Hepatology 0:0-0(0).

BMBL; AJ344116; CAC67019.1;
BMBL; AJ344116; CAC67019.1;
SEQUENCE 389 AA; 42846 MW; E2A6E53DAD1353A6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q8QXQ3
Q8QXQ3;
01-JUN-2002
         246
                             228
                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN=HBSAG NEGATIVE
                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus.
Viruses; Retroid viruses;
NCBI TaxID=10407;
                                                    186
                                                                          168
                                                                                                                                                                                                                                                                                                                                                          Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-2002
01-JUN-2002
                                                                                               126
                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                           large surface antigen.
                                                                                                                                          66
                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                    EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48
TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ'n
                     CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLIPGSSTTSTGPCRTC
                                 CPPTCPGYRMMCLRRPIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGBCRTC
                                                                TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                            AMQWNSTTFHQTLQDPRVRGLYLPAGGSSSGTVNPVPTTVSHISSIFSRIGDPALNMENI
                                                                                                                          AMQWNSTTFHQTLQDFRVRGLYFPAGGSSSGTVNPVFTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                     GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                        GAGAFGLGFTÞÞHGGLLGMSÞQAQGILQTLÞANÞÞÞASTNRQSGRQÞTÞLSÞÞLRNTHÞQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GLSPTVWLSVIWMMYWGPSLYSILSPFLELLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTVQGTSMYPSCCCTKPSDCNCTCIPIPSSWAFGKPLWEWASARFSWLSLLVPPVQWPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTPAQGTSMYPSCCCTKPSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPTCPGYRWMCLRRFIIPLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSVGBCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CEPTCPGYRMMCLRRFIIFLFILLCLIFLLVLLDYQGMLFVCPLIFGSSTTSTGFCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TŚGPLGPLLVLÓAGPPLLTRILTIPOSLDŚWWTSLNPLGGTTVCLGONŚOSPTŚNHŚPTŚ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGAFGLGPTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALNNENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMQWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNFVPTTVSDISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                   (AUG-2001) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ? (TrEMBLrel.
? (TrEMBLrel.
? (TrEMBLrel.
                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                 97.2%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                            PATIENT GX27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21,
                                                                                                                                                                                                                                                                                                                                                                                                                        Hepadnaviridae;
                                                                                                                                                                                                   Score 1875; DB 12;
Pred. No. 3e-152;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389
                                                                                                                                                                                                                          DB 12; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                À
                                                                                                                                                                                                                                                                                                                                                                                                                      Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                          389;
                                                                                                                                                                                                     0
                                                                                                                                                                                                   Gaps
                                                                                      185
                                                                                                                                  125
                                                                                                                                                         107
                     287
                                           245
                                                                 227
                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                   0
```

```
RESULT 11
QBQXPP

ID AC QBQXP
DT 01-JU
DT 01-JU
DT 01-JU
DT 01-JU
DT 01-JU
OT 01-JU
OX PRES:
OS Hepa:
OC Viru
OX NCBI
RN [1]
RN [2]
RP SEQU
RA Kay
RL Subn
RN [2]
RP SEQU
RA Jean
RT "Ch
RT Hep
DR EMB
SQ SEQ
             RESULT 12
Q9QAF2
ID Q9QAF
AC Q9QAF
DT 01-MA
DT 01-MA
DT 01-MA
DT 01-MA
CT 0
                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                       $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                       Q9QAF2 PRELIMINARY,
Q9QAF2;
01-MAY-2000 (TrEMBLrel. 13, 0
01-MAY-2000 (TrEMBLrel. 13, 1
01-MAR-2002 (TrEMBLrel. 20, 1
Large S protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
             Hepatitis
Viruses; R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q8QXP9 PRELIMINARY;
Q8QXP9;
01-JUN-2002 (TrEMBLrel. 21, C
01-JUN-2002 (TrEMBLrel. 21, L
01-JUN-2002 (TrEMBLrel. 21, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jeantet D., Chemin I., Mandrand B., 2 "Characterization of two Hepatitis B Hepatitis B surface antigen-negative Hepatology 0:0-0(0).
EMBL; AJ344117; CAC87013.1; -.
                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                                                                                                                                                                                                                       288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQW
                                                                                                                                                                                                                                                                                                                                                                                                                                246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                         306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Viruses; Retroid NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus.
Viruses; Retroid viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (AUG-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Large surface antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                    ĠĹŚPTVWĹŚVIWMWYWĠPŚĹYŚIĹŚPFĹPĹĹPĬFFĊĹWYYI
                                                                                                                                                                                                                                                                                                             GLSPTVWLSVIWMMWYWGDSLYSILSDFLDLLPIFPCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                TTPAQGTSMYPSCCCTXPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPPVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMQWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         al Similarity
336; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVWLSVIWMMWYWGPSLYNILRPELPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLDIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 s B virus.
Retroid v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
         viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAC87013.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42764 MW; 9AC5A4D46BB73632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97.2%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepadnaviridae; Orthohepadnavirus.
                                                                                     Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1875; DB 12;
Pred. No. 3e-152;
3; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zoulim F., Trepo C., Kay A., 3 virus populations isolated patient.";
                                                                                                                                                                                 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389
                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿
                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                      389
                                                                                                                                                                                                                                                                                                                               347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125
                                                                                                                                                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                              287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                 र्
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            [2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-HBV/1218;
STRAIN-HBV/1218;
STRAIN-HBV/1218;
Hannoun C., Horal P., Lindh M.;
Submitted (JAN-1999) to the EMBL/GenBank/DDBJ
EMBL; AF121242; AAF24681.1; -.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
SEQUENCE 389 AA; 42910 MW; BB6541E18D3935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=20109034; PubMed=10640544; Hannoun C., Horal P., Lindh M.; Hannoun E., Horal P., Lindh M.; "Long-term mutation rates in the hepatitis J. Gen. Virol. 81:75-83(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-HBV/1218
                                                                                                                                                                                                                                       Q9QAF9
Q9QAF9;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=10407;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EQUENCE
                                                                             STRAIN=HBV/1303;
MEDLINE=20109034; PubMed=10640544;
Hannoun C., Horal P., Lindh M.;
"Long-term mutation rates in the h
J. Gen. Virol. 81:75-83(2000).
                                                                                                                                                                                                                 01-MAY-2000 (TrEMBLrel.
01-MAY-2000 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
Hannoun C., Horal P., Lindh M.;
Submitted (JAN-1999) to the EMBL/GenBank/DDBJ
EMBL; AP121239; AAP24661.1; -.
InterPro; IPR000349; Hepvir_surfAg.
                                                                                                                                                         NCBI_TaxID=10407;
                                                                                                                                                                       Hepatitis B virus.
Viruses; Retroid viruses;
                                                                                                                                                                                                                                                                                                                                                                                                             228
                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                        168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                           SEQUENCE FROM
                                                                                                                                                                                                      Large S
                                             STRAIN-HBV/1303;
                                                                                                                                                                                                                                                                                                                     348
                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                       246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                   13
                                                                                                                                       EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMOWNSTTFHOTLODERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPDPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGEFLLTRILKIEQSLDSWATSLNFLGGTTVCLGQNSQSFTSNHSPTS 227
                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVILDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                   ĠĹŚPŤVWĹŚVĬWMWWYWĠPRĹYŚIĹŚPFĹPĹĹPIFFCĹWVYI
                                                                                                                                                                                                                                                                                                                                 GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                               TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                            TTPAQGTSMYDSCCCTKDSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPPVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                            CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FROM
                                                                                                                                                                                                        protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97.1%;
nilarity 98.5%;
Conservative
                                                                                                                                                                                                                                                                PRELIMINARY;
                                                           Z
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Score 1874; Di
; Pred. No. 3.7e:
1; Mismatches
                                                                                                                                                                         Hepadnaviridae;
                                                                                                                                                                                                                     Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BB6541E18D39357E
                                                                                            hepatitis
                                                                                                                                                                                                                                                                  389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .7e-152;
                                                                                                                                                                                                                                                                  ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B virue
                                                                                                                                                                            Orthohepadnavirus
                                                                                               B
                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         databases
                                                                                               virus
                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                                                                                                                                          389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Сарв
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                                             305
                                                                                                                                                                                                                                                                                                                                                                                                                   287
                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
Q9WNS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                               A CONTRACTOR OF THE CONTRACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Simi
Matches 337;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                 S
                                                                      Query Match
Best Local
                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00695; vMSA; SEQUENCE 389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9WNS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1999 (TrEMBLrel. 12,
01-NOV-1999 (TrEMBLrel. 12,
01-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pre-S1
                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=20006001;
Gerner P., Lausch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis B virus.
Viruses, Retroid v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108
                                                                                                                               CHAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                               anti-HBe/HBeAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                   Signal.
                                                                                                                                                                                        InterPro; IPRO00349; Hepvir_surfAg. Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                           Submitted (MAY-1999) to the EMBL/GenBank/DDBJ EMBL; AF151735; AAD41361.1; -
                                                                                                                                                                                                                                                                                                                        STRAIN-AYW2;
                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                         "Hepatitis B virus core promoter mutations in children with multiple anti-HBe/HBeAg reactivations result in enhanced promoter activity."; J. Med. Virol. 59:415-423(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                      Wirth S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             228
                                                                                                                                                                                                                                                                                   Wirth S.;
                                                                                                                                                                                                                                                                                                Gerner P.R., Lausch E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 GAGAPGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSHISSIFSRIGDLALNWENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMOWNSTTEHQTLQDDRVRGLYFDAGGSSSGTVNDVPTTVSPISSIFSRIGDDALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĠĀĠĀĒĠĹĠĒTĒĒHĠĠĹĹĠWŚĒQĀQĠĬĹQTĹĒTNĒĒĀŠTNRQŠĠRQĒTĒĹŠĒĒLRNTHĒQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPFLRNTHPQ
                                                        335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                          Similarity
                                                                                                                       1
164
389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                        96.6%;
milarity 98.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         precursor.
                                                                                                                                 A
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      в.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PubMed=10534721;
B., Friedt M., Tratzmuller R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; 1.
42890 MW;
                                                                                                                                                   389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96.6%;
                                                                                                                                     42779
                                                                                                                                                                                                                                                                                                        Friedt M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Score 1864; Di
; Pred. No. 2.6e
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepadnaviridae;
                                                                                                                                     3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
Last sequence update)
Last annotation update)
                                                          3,
                                                            Score 1864; DI
Pred. No. 2.6e
3; Mismatches
                                                                                                                                   POTENTIAL.
S PROTEIN.
; 30511E862904BE7C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3D971AB01FD77FEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                          Tratzmueller R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db
2.6e-151;
4;
                                                            14; DB 12;
2.6e-151;
ches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Orthohepadnavirus
                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spangenberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                Length
                                                                  Indels
                                                                                                                                                                                                                                                                                                            Spangenberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             389;
                                                                                                      389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                    0
```

```
S
                                              맒
                                                                 S
                                                                                     밁
                                                                                                                  Ś
                                                                                                                                         밁
                                                                                                                                                            ঠ
                                                                                                                                                                                                                                         RESULT 15
092921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                    Query Match 96.5
Best Local Similarity 97.4
Matches 333; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 092921;
01-NOV-1998 (
01-NOV-1998 (
01-MAR-2002 (
                                                                                                                                                                                                                              Gunther S., Wilma P., Meisel H., Will H.;
Submitted (JAN-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF043594; AAC40811.1; -.
InterPro: IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
CHAIN 164 389 S PROTEIN.
CHAIN 164 389 S PROTEIN.
SEQUENCE 389 AA; 42795 MW; 3369787D78F188F9 CRC64;
                                                                                                                                                                                                                                                                                                                       STRAIN=1/91;
                                                                                                                                                                                                                                                                                                                                                        MEDLINE-98240943; PubMed=9581787;
Gunther S., Paulij W., Meisel H., Will H.;
"Analysis of hepatitis B virus populations in
treated patient reveals predominant mutations
changing e-antigenicity.";
Virology 244:146-160(1998).
186 CPPTCPGYRWMCLRREIIFLFILLLCLIFLLVLLDYQGMLFVCFLIPGSSTTSTGFCRTC
                                              168
                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN=1/91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
NCBI TaxID=10407;
                                                                   126
                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pre-S1 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   092921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306 GLSPTVMLSVIMMMYMGPSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                   9
                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                              6 GAGAFGIGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48
                                  TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                AMQMNSTTFHQTLQDDRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                 AMOWNSTTFHOTLODERVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALNWENI 167
                                                                                                                                GAGAFGLGFTPPHGGLLGWSPOAQGIIQTLPANPPBASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGTŚMYPŚĆĆCTKPŚEGNCTCIPIPŚŚWAFGKFLWEWAŚARFŚWLŚLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTPAQGTSMYBSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CPPTCPGYRMMCLRREIIFLEILLLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGFCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISLIFSKIGDLALNWENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AMOMNSTTFHOTLODERVRGLYFPAGGSSSGTVNEVETTVSEISSIFSRIGDEALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAFGLGFTPPHGGLLGWSPQAQGILHTVPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                96.5%; Score 1861; DB 12;
97.4%; Pred. No. 4.7e-151;
tive 3; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389 AA
                                                                                                                                                                                                                                                                                                                                                                                an
in
                                                                                                                                                                                                                                                                                                                                                                             interferon-alpha-
the C-gene and
                                                                                                                                                                                  Indels
                                                                                                                                                                                                         Length 389;
                                                                                                                                                                                  <u>,</u>
                                                                                                                                                                                Gaps
              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     227
                                                                                                                                                                                0
```

Search completed: February 3, 2003, 09:25:43 Job time: 48.8821 secs

·				
		·	·	
				·
	·			
	·			

```
Title:
Perfect score:
Sequence:
Total number of hits satisfying chosen parameters:
                                                  Searched:
                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                     OM protein - protein search, using sw model
                                                                                                                                                                                                                                                          Run on:
                                                                          BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                             US-09-890-752A-1
1929
1 MGRGDGAGAFGLGFTPPHGG......SILSPFHPLLPIFFCLWVYI 347
                                         112892 seqs, 41476328 residues
                                                                                                                                                                                                     February 3, 2003, 09:16:26; Search time 12.6951 Seconds (without alignments)
1133.686 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
     112892
```

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	B	ID	Description	ption
, _	1868		389	- 3	VMSA_HPBVA	P24025	hepatitis
N	1868	•	389	ب	VMSA HPBVY	312	heratiti
. ω	1851		389	μ	VMSA HPBVZ	P03139	hepatit
4.	1771	1.	400	μ	VMSA_HPBVR	P03140	hepatiti
, tu	1755	1	389	_	VMSA HPBVL	P12911	hepatiti
o	1755	•	400	H	VMSA HPBVP	002317	heretiti
7	1745	•	400	μ	VMSA HPBV4	P12914	
œ	1715	88.9	389	μ	VMSA HPBVJ	P17398	
y	1713		400	_	VMSA HPBV2	D03141	
10	1704	•	389	μ	VMSA HPBVO	P17399	
11	1695	٠	389	Н	VMSA HPBVW	P03142	hepatitie
12	1684	•	389	ب	VMSA HPBVI	P17397	
: L	1684	-	400	,	VMSA HPBV9	£17101	
4 1-4	1615	•	400	Н	VMSA_HPBVT	Q05496	hepatit
	1214		226	,	VMSA_HPBV0	P31873	
1 o	1121	•	226		VMSA_HPBVD	P31868	
18	1100) k	4 +	VMSA HPBVN	P30019	
.19	856	4 0	4 2 0	4 د	VMSA DEBVS	P31869	
20	926		4 4	4 ب	VMSA WHV7	#12910 112910	
21	924	٠	431		VMSA WHV8I	P17400	
22	922	47.8	428	r	VMSA HPBGS	P03144	ground smit
23	918	47.6	426		VMSA_MHV1	P03143	woodchuck
24	· an		431		VMSA_WHV8	P06432	woodchuck
)))	833.5		282	μ	VMSA_WHVW6	P11293	woodchuck
3 C	, ,) (L	بر،	VMSA_HPBHB	P13847	heron hepat
) A C	210.0	11.2	3 L		VMSA_HPBDC	P30029	duck hepat
2 6	215	٠	, L		VMSA_HPBDW	P17195	
י ני	3 E	٠) () () ()		VESA HEBUU	P03145	
יי ני בי	105) (L		VMSA HPBDB	P17194	
) L	100		363	۰ بـ	CYB TRYBB	P00164	20
	1010		2	-	WALL HUMAN	043516	
Ü		,	503	٠,			nomo sapien

밁 Ś 당

126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVC

44	: :	44	43	. #	ا د	4	40		20	ŭ		ű	ú	,	Li U	: :	u 4
95.5	00	8	96	9/		97 7	97.5	9	0	99.5	99.0	00	TOO	2	100.5		103
5.0		n >	5.0	٥.0	1 .	n	5.1	. F	,	٠ د د		,	٥.	,	5		'n
378	0 7 0	3	371	605	200	3	759	7.0	3	1887	T/ 0	2	599		1874	100	1840
—	۲	•	_	ب	٠,	٠	_	۲	•	μ	۲		,_	•	-	۲	_
LEUK_RAT	GPBA HUMAN	7	CYB LEITA	YHC8 YEAST	CCAH RAT		TEA1 YEAST	OSAWA_ZUALL		RPB1 DROME	SZ4A HUMAN		PGH1 HUMAN		POLR KYMV.T	VLDT WWILL	שתאמת ופסס
P13838 r				P38739 s	Q9eq60 r		P47988 8	P54769 p	40000	D04050 A	095486 h		4 616164	400004	4 705350		
rattus nor	omo sapie	CTRIMICITY	Di channing	accharomy	attus nor	Succession of	saccharomyc	apaver ec	TTI TOOUT	drogonhila	lomo sapie	Trans out	ממסום	remiedyd)		arabidopsi,	

ALIGNMENTS

```
THEFT THE READERED BORGES COCCES TO THE READERED BORGES BORDED BORDES BORDED BORDED BORDES BORDED BORDES BORDED BORDES BORDED BORDES BORDED BORDED BORDES BORDED BORDED BORDES BORDED BORDES BORDED BORDED BORDED BORDES BORDED BORDED BORDED BORDES BORDED BOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
VMSA_H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WSA HPBVY
P03138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. (CLONE PHB320).

MEDLINE-85204397; PubMed=3996597;

Bichko V., Pushko P., Dreilina D., P
"Subtype ayw variant of hepatitis B
analysis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.

MEDLIND=81012091; PubMed=399327;

Galibert F., Mandart E., Fitoussi F.,

"Nucleotide sequence of the hepatitis
cloned in E. coli.";

Nature 281:646-650(1979).

[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus (subtype ayw).
Viruses; Retroid viruses; Hepadn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-JUL-1986
                                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (5 or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                      EMBL; V01460; -; NOT ANNOTATED_CDS.
EMBL; X02496; CAA26324.1; ALT_INIT.
EMBL; M12393; AAA46396.1; ALT_INIT.
PIR; A03703; SAVLAH.
PIR; A03704; SAVLBH.
                     CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kukain R.A.; "Synthesis of the surface antigen of hepatitis B virus in Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pumpen P., Kozlovskaya T.M., Borisova G.L.,
Dishler A.V., Kalic Y.V., Pudova N.V., Gren
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dokl. Biochem. 271:246-249(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                 Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLIFGSSTTSTGPCRTCCFPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLIFGSSTTSTGPCRTCCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVMLSVIMMMYWGPSLYSILSPELPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lett. 185:208-212(1985).
                                                                                                                                                                                                                                19R000349; Hepvir_surfAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   164
112
166
309
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
    163
389
4
112
166
309
347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , Created)
, Last sequence up,
, Last annotation on precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepadnaviridae; Orthohepadnavirus
  MAJOR SURFACE ANTIGEN.

N-LINKED (GLCNAC. . .) (
Q -> E (IN REF. 2) .
A -> S (IN REF. 2) .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pumpen P., G
B virus. DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tiollais P., Charnay P.;
B virus genome (subtype ayw)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Byuchko V.V.,
B.Y., Krievinya V.Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gren B.Y.;
A primary structure
                                                     (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
```

```
RESULT 3
VMSA_HPBVZ
ID VMSA_HPBVZ
ID VMSA_HPBVZ
ID STANDARD;
PR
AC P03139;
PT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last seque
DT 01-OCT-1989 (Rel. 12, Last annot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    よ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                         Leadbetter G., Murray K.; "Hepatitis B virus genes and their expression in Nature 282:575-579(1979).
                                                         Antigen.
PROPEP
CHAIN
                                                                                                      PIR; A932;
InterPro;
                                                                                                                                                                                                                                                                            MEDLINE=81012115; PubMed=399329; Pasek M., Goto T., Gilbert W., Z
                                                                                                                                                                                                                                                                                                                    Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
NCBI_TaxID=10419;
                                                                                                                                                                                                                                                                                                                                                                    Major surface antigen
                                                                                        InterPro; IPR000349; Hepvir_surfAg
Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                              EMBL; J02202; AAA45487.1;
PIR; A93217; SAVLAJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMOWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQFTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLSPTVMLSVIMMMYMGPSLYSILSPELPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTPAQGTSMYPSCCCTKDSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANNPPPASTNRQSGRQFTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CPPTCPGYRMMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       150
288
389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
   1
164
4
112
166
309
389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96.8%;
98.2%;
    42801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ¥.
                                                                                                                                                                                                                                                                                                                                                                                 : sequence up
    ₹
:
                                                                                                                          ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1868; DB 1;
Pred. No. 2.3e-125
2; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MTT -> I (IN
             MAJOR SURI
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -> I (IN REF. 2).
TT -> TTP (IN REF.
6DC9E682DA694F63 (
                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                             Zink B.,
             R SURFACE ANTIGEN.
NKED (GLCNAC. . .)
NKED (GLCNAC. . .)
NKED (GLCNAC. . .)
NKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                               389
                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                Schaller
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3e-125;
                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 AND 3).
                                                                                                                                                                                                                                                          [13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                H., Mackay
               (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                           coli.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
RESULT
VMSA_HE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 332; Conserv
       CHAIN
CARBOHYD
                                                                                                     This SWISS-PROT entry is copyright. It is produced through a celebration the Swiss Institute of Bioinformatics and the EMMEL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and foentities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                 InterPro; IPR000349; Hepvir_surfAg
Pfam; PF00695; vMSA; 1.
                                                                          EMBL; V00867; CAA24234.1; PIR; A03705; SAVLA.
                                                                                                                                                                                                                                                                                      MEDLINE-83168919; PubMed-6300776;
Ond Y., Onda H., Sasada R., Igarashi K.,
"The complete nucleotide sequences of the
DNA; subtype adr and adw.";
Nucleic Acids Res. 11:1747-1757(1983).
                                         Antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HPBVR
                                                                                                                                                                                                      antigen and its product.";
J. Gen. Virol. 66:195-200(1985).
                                                                                                                                                                                                                                          MEDLINE=85107103; PubMed=3968537;
Takeshima H., Inokoshi J., Namiki M.,
                                                                                                                                                                                                                                                       MEDLINE=85107103;
                                                                                                                                                                                                                                                                    SEQUENCE OF 176-350 FROM
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=106820;
                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis B virus (subtype adr).
Viruses; Retroid viruses; Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                     21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last seg
15-JUN-2002 (Rel. 41, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                               Major surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLSPTVWLSVIWMWWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HPBVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWBWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKEIMEWASARPSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CPPTCPGYRWMCLRRPIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGSCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGBCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AMHWINSTTEHOTIODERVEGIXEPAGGSSSGTVNPVPTTTSPISSIFSRIGDPALIMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GÁGAFGLGFTÞÞHGGLLGWSÞQAQGIMQTLÞÁNÞÞÞÁSTNRÓSGRÓÞTÞLSÞÞLRTTHÞÓ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANDPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
      1
175
15
                                                                                                                                                                                                                    ., LUCKURIT U., Namiki M., Shimada J., Omura S.; analysis of the gene coding for hepatitis B virus its product.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                            antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
     174
400
15
                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96.0%;
97.1%;
                                                                                                                                                                                                                                                                    z
                                                                                   ALT_INIT.
MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1851; DB 1;
Pred. No. 3.7e-124;
2; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     400
                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                           Sugino Y., Nishioka K.; e cloned hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                      Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
  .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 389;
                                                                                                                                                    restrictions
                                                                                                                                                                 a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                   or commercial
.ch/announce/
                                                                                                                                                                                                                            surface
                                                                                                                                           in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                          200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
THE TERM THE TRANSPORT OF THE TERM TO SOLVE THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FFFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 315; Conser
          Antigen.
PROPEP
CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VMSA_HPBVL STANDARD; PRT; 3
P129I1;
01-OCT-1989 (Rel. 12, Created)
01-OCT-1989 (Rel. 12, Last sequence up
01-APR-1990 (Rel. 14, Last annotation
                                                                                                                                                                 EMBL; D00220; BAA00159.1;
PIR; C28885; SAVLCP.
                                                                                                                           Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                        "The complete nucleotide sequence of the genome of a hepatitis virus isolated from a naturally infected chimpanzee."; J. Gen. Virol. 69:1383-1389(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                            Vaudin M., Wolstenholme Harrison T.J.;
                                                                                                                                                  nterPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE=88258473;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10414;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              306 GLSPTVWLSVIWMWWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLSPTVWLSVIMMAWYWGPSLYNILSPFLPLLPIFFFFFFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIPAQGTSMFPSCCCTKFSDGNCTCIFIPSSWAFARFLWEWASVRFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVDFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TSGFLGPLLVLQAGFFLLTRILTIPQSLDSW#TSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGONSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMQWNSTTFHQALLDPRVRGLYPPAGGSSSGTVNPVPTTASPISSIPSRTGDPAPNMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNWENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGAFGPGFTPPHGGLLGWSPQAQGILTTVPAAPPPASTNRQSGRQPTPISPPLRDSHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        surface antigen precursor.
                                                                                                                                              IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Retroid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B virus (strain
Retroid viruses;
          164
4
112
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
177
320
400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΑĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                .
PubMed=2838576;
nholme A.J., Tsiquaye K.N.,
          163
389
112
166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
177
320
43685
                                                                                                                         Hepvir_surfAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91.8%;
92.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lsh / chimpanzee isolate).
Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
    MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1771; DB 1;
Pred. No. 1.7e-118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -LINKED (GLCNAC. ..) (PC
-LINKED (GLCNAC. ..) (PC
-LINKED (GLCNAC. ..) (PC
16DB0B15C6CB697A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zuckerman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        A.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
RESULT 6
VWSA HAVE
ID VWSA HAVE
DT 01-UTL
DT 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 313; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q02317;
01-JUL-1993
01-JUL-1993
01-JUL-1993
                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis B virus (subtype adw / strain Philippino/pFDW294).
Viruses, Retroid viruses, Hepadnaviridae, Orthohepadnavirus.
NCBI_TaxID=31514;
    CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                 isolated from a Philippino: comparison with of the same subtype.";
J. Gastroenterol. Hepatol. 3:215-222(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
Estacio R.C., Chavez C.C., Okamoto H., Lingao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                      EMBL; M57663; AAA69680.1; -.
InterPro; IPR000349; Hepvir_surfAg
Pfam; .PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Domingo E., Mayumi M.;
"Nucleotide sequence of a hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                             PROPEP
                                                                                                                                                     Antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAFGLGFTPPHGGLLGWSPQAGGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQWNSTTEHQTLQDDRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMQMNSTTFHQALQDPRVRGLYFPAGGSSSGTLNPVPNTASHISSVFSTTGDPAPNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRMMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1FGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HPBVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTPAQGTSLIPSCCCTKPSDGNCTCIPIPSSWAFAKFLWEWASVRFSWLSLLAPFVQWFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTPAQGTSMYDSCCCTKDSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVDFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel. 26, Created)
(Rel. 26, Last sequence update)
(Rel. 26, Last annotation updat
ce antigen precursor.
      1
175
15
123
123
177
177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            309
42539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91.0%;
91.5%;
                              174
400
15
123
177
177
        43740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ME.
        ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                             comparison o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC. . , 87D1F9338ZA10DBD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1755; DB 1;
Pred. No. 2.3e-117;
                       MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC. .)
N-LINKED (GLCNAC. .)
N-LINKED (GLCNAC. .)
N-LINKED (GLCNAC. .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
          7EBD53A004136BD2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALTUB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   reported three genomes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of subtype adw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Reyes M.T
                              (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
VMSA_HPBV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                      TMSA HPBV4 STANDARD; PRT; 4
p12934; Q67860;
01-OCT-1989 (Rel. 12, Created)
01-OCT-1989 (Rel. 12, Last sequence up
15-JUL-1998 (Rel. 36, Last annotation
Major surface antigen precursor.
                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its to by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                    MEDLINE=83246570; PubMed=6306594; MEDLINE=83246570; PubMed=6306594; C.,
                              Antigen.
PROPEP
CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                              Fujiyama A., I
Matsubara K.;
                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10409;
                                                                                                                                                                                                                                                                                                                                           Hepatitis B virus (subtype adr4)
Viruses; Retroid viruses; Hepadn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                           "Cloning and adr.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
                                                                                                            EMBL; X01587; CAA25747.1; ALT INIT.
EMBL; X01587; CAA25743.1; ALT_INIT.
InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; VMSA; 1.
                                                                                                                                                                                                                                                 Nucleic Acids Res. 11:4601-4610(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLSPTVMLSAIMMMWYMGPSLYNILSPFIPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGAPVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTAFHQALQDPRVRGLYFPAGGSSSGTLNPVPTIASHISSISSRIGDPAPNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQMNSTTFHQTLQDDRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                               1
175
15
123
127
320
                                                                                                                                                                                                                                                                      structural analyses of hepatitis
                                A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91.0%;
                                  43542
   90
   . 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13,
                                                                                                                                                                                                                                                                                                                                             Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1755; Di
pred. No. 2.4e-
13; Mismatches
                                  ₹
:
                                MAJOR SURFACE ANTIGE
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
    Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                          R SURFACE ANTIGEN.
NKED (GLCNAC. . .)
NKED (GLCNAC. . .)
NKED (GLCNAC. . .)
NKED (GLCNAC. . .)
     1745;
No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                            Yoneyama T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .4e-117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                              ጅ
                DB 1;
                                                                                                                                                                                                                                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 400;
                                                                                                                                                                                                                                                                          virus DNAs, subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
               Length 400
                                                                                                                                                                                                                                                                                               Ohtomo
                                             (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
SOT THE THE REAL PROPERTY OF THE PROPERTY OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 8
VMSA_HPBVJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                Query Match
Best Local S
Matches 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                       CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                      Antigen.
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VMSA HPBVJ
P17398;
                                                                                                                                                                                                                                                                                                                                    EMBL; D00329; -; NOT PIR; G28925; SAVLJ1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Miyakawa Y., Mayumi M.;
"Typing hepatitis B virus by homology in nucleotide comparison of surface antigen subtypes.";
J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-AUG-1990 (Rel. 15,
01-AUG-1990 (Rel. 15,
01-AUG-1992 (Rel. 23,
                                                                                                                                                                                                                                                                                    InterPro; IPR000349; Hepvir_surfAg.
Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=89010694;
Okamoto H., Tsuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=10413;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis B virus (subtype adw / strain Japan/pJDW233).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLSPTVMLSVIWMMYWGPSLYNILSPELPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIPAGGTSMFPSCCCTKPSDGNCTCIPIPSSWAFARFLWEGASVRFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPPICPGYRWMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPLLPGTSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMQWNSTTFHQALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSISSRTGDPAPNMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNWENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGAPGPGTTPPHGGLLGWSPQAQGVLTTVPVAPPPASTNRQSGRQPTPISPPLRDSHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             311;
                                      Similarity
                                                                                                  164
164
112
166
309
389
                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              antigen precursor.
                                                                                                       $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=3171552;
F., Sakugawa H.,
                                                                                                                          163
389
4
112
166
309
                                                                                                       42603
                               89.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
                                                                                                       ¥
              12;
                                                                                           MAJOR SURFACE ANTIGEN.

N-LINKED (GLCNAC. .) (POT
M; 72F8D481924DC104 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
                               Score 1715;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sastrosoewignjo R.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 389
                               .5e-114;
                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           347
                                                Length
       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                   (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence:
                                                  389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a collaboration ~
    <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                    ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
SOF THE TRANSPORT OF THE PROPERTY OF THE PROPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
VMSA_HE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
```

```
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                              Antigen.
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P03141;
21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence up:
15-DEC-1998 (Rel. 37, Last annotation
Maior surface antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VMSA HPBV2
                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboratio between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercia entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                          EMBL; X02763; CAA26539.1; -. EMBL; J02205; AAA45524.1; -. PIR; A03706; SAVLVD.
                                                                                                                                                                                                                                                                                                                                             hepatitis B virus surface antigen."; Nature 280:815-819(1979).
                                                                                                                                                                                                                                                                                                                                                            "Nucleotide sequence of the gene coding hepatitis B virus surface antigen.";
                                                                                                                                                                                                                                                                                                                                                                                              Rutter W.J.;
                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=79244739; PubMed=471053; Valenzuela P., Gray P., Quiroga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Valenzuela P., Quiroga M., Zaldivar
(In) Field B.N., Jaenisch R., Fox C.
Animal virus genetics, pp.57-70, Aca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus (subtype adw2).
Viruses; Retroid viruses; Hepadnaviridae;
NCBI_TaxID=10408;
                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 175-400 FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                               interPro;
                                                                                                                                     A03706; SAVLVD.
rPro; IPR000349; Hepvir_surfAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVMLSVIMMMYMGPSLYNILSPEMPLLPIFFCLMVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVWLSVIWMMWYWGPSLYSILSPFLFLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ASGLLGPLLVLQAĞFFLLTKILTİPQSLDSWWTSLNFLGĞTPVCLGQNSQSQISSHSPTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMQWNSTTFHQTLQDPRVRALYFPAGGSSGTVSPAQNTVSAISSILSKTGDPVPNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GVGAFGPGFTPPHGGLLGWSPQAQGILTSVPAADPPASTNRQSGRQPTPLSPPLRDTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                             PF00695; vMSA;
 320
400
                                   1
175
15
123
123
      Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                        174
400
15
123
177
                                                                                                                                                                                                                                                                                                                                                                                                                                          N.A.
    ₹
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Academic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J., Gray P., .F. (eds.);
                                                                                                                                                                                                                                                                                                                                                                                                          Zaldivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                           for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Press,
                                                                                                                                                                                                                                                                                                                                                                                                        <u>:</u>
   CRC64;
                                                                                                                                                                                                                                                                                                                                                                           major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  347
                                                                                                                                                                                                                                                                                                                                                                                                        Goodman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rutter W.
              (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      York (1980)
                                                                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                        <u>.</u>
                                                                                                                                                                                                                                                                                                         collaboration
                                                                                                                                                                                                                                                                                                                                                                           ō.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 107
```

Length

400;

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VMSA_HPBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local &
Matches 303
        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _HPBVO
_VMSA_HPBVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P1739;
01-AUG-1990
01-AUG-1990
01-AUG-1992
                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for commenties requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINGEOFFICE
OKAMOTO H., TBuda F., Sakugawa n., ---
Okamoto H., TBuda F., Sakugawa n.,
Miyakawa Y., Mayumi M.;
Miyakawa M.;
Miya
                                                                  CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Major surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        comparison of surface antigen subt
J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                PIR; H28925; SAVLJ2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=89010694; PubMed=3171552;
Okamoto H., Tsuda F., Sakugawa H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; Retroid .
NCBI_TaxID=10415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTPAQGUSMFPSCCCTKPTDGUCTCIPIPSSWAFAKYLWEWASVRFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AMQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASHISSISARTGDPVTNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GLSPTVWLSAIWMWYWGPSLYSIVSPFIPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPPICPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSTTTSTGPCKTC
                                                                                                                                                                                                                            PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                 IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     virus (subtype adw / strain Okinawa/pODW282).
troid viruses; Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 15, Created)
(Rel. 15, Last sequence update)
(Rel. 23, Last annotation update)
ce antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                  164
112
112
166
309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                  3
                                                      163
389
4
112
116
309
42408
                                                                                                                                                                                                                                                                                NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88.6%;
        88.3%;
                                                                                                                                                                                                                                                 Hepvir_surfAg
                                                                      ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1713; DB 1;
Pred. No. 2.2e-114;
                                                                  MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC. ..)
N-LINKED (GLCNAC. ..)
N-LINKED (GLCNAC. ..)
N-LINKED (GLCNAC. ..)
(H; CECACODDA3D84A10 CRC6-
          Score 1704; DB 1;
Pred. No. 9.3e-114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sastrosoewignjo R.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     389
                                                                                       (GLCNAC...)
(GLCNAC...)
(GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          347
                                                                      CRC64;
                             Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                       (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                    a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>.</u>
                                                                                                                                                                                                                                                                                                                                                       .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                              commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                               7 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
VMSA_HP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                  STITITION DESCRIPTION OF THE STREET OF THE S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
Query Match
Best Local Sim
Matches 300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VMSA HPI
P03142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-JUL-1986
01-AUG-1992
01-NOV-1997
                                                                                CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                          Antigen.
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "The complete nucleotide sequences of the cloned hepatitis DNA; subtype adr and adw."; Nucleic Acids Res. 11:1747-1757(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=83168919; PubMed=6300776;
Ono Y., Onda H., Sasada R., Igazashi K., Sugino Y., Nishioka
Ono Y., Onda H., Sasada R., Igazashi K., Sugino Y., Nishioka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis B virus (subtype adw).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=106821;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Major surface
                                                                                                                                                                                                                                                                                                                                  EMBL; V00866; CAA24233.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Viruses; Retroid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108
                                                                                                                                                                                                                                                                       Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                  [nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVWLSVIMMMWYWGPSLYSILSPFLPLLPIFFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAQGTSMYPSCCCTKDSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CPPICPGYRWMCLRRFIIFLCILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ASGLIGPLIVIQAGFFLLTKILTIPQSLDSWWTSLNFLGGTPVCLGQNSQSQISSHSPTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMQWNSTTFHQTLQDPGVRALYFPAGGSSSGTVSPAQNTVSAISSILSKTGDPVPNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GVGAFGPGFTPPHGGLLGWSPQAQGLLTTVPAAPPPASTNRQSGRQPTPLSPPLRDTHPQ
                                                                                                                                                                                                                                                                                                                   A93460;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HPBVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303;
                     Similarity
                                                                                                                                                                                                                                                                                               IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 01, Created)
(Rel. 23, Last sequence up
(Rel. 35, Last annotation
                                                                                  1
164
4
26
112
116
309
389 /
    Conservative
                                                                                                                                                                                                                                                                                                                   SAVLVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                     ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     viruses;
                                                                                                        163
389
26
112
166
309
                                                                                                                                                                                                                                                                                             Hepvir_surfAg
                                                                                       42354
                          87.7%;
                                             87.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15;
                                                                                       ₹
      14;
                                                                                     MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC. .)
      Pred. No. 4e-113;
1; Mismatches 2
                                             Score 1695;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Orthohepadnavirus
                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24;
          28;
                                                                                         CRC64;
                                             Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                          (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    K.;
virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
          0
```

•.,

```
Ś
                                                                                                RESULT
VMSA_HI
                                              Query Match
Best Local S
Matches 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                              CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                            Antigen.
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.

MEDILINE=99010694; PubMed=3171552;

Okamoto H., Tsuda F., Sakugawa H., Sastrosoewignjo R

Miyakawa Y., Mayumi M.;

"Typing hepatitis B virus by homology in nucleotide

comparison of surface antigen subtypes.";

J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                               interPro; IPR000349; Hepvir_surfAg
Pfam; PP00695; vMSA; 1.
                                                                                                                                                                                                                     EMBL; D00331; -; NOT ANNOTATED CDS.
PIR; 128925; SAVLJ3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis B virus (subtype adw / strain Indonesia/pIDW420).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
NCBI_TaxID=10412;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-AUG-1990 (Rel. 15, Created)
01-AUG-1990 (Rel. 15, Last sequence update)
01-AUG-1992 (Rel. 23, Last annotation update)
Najor surface antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IABAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P17397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VMSA_HPBVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     306
6 GAGAPGIGFTPPHGGILGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLSPTVWLSAIWMWWYWGPSLYSIVSPFIPLLPIPFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLSPTVWLSVIWMMWYWGPSLYSILSPELDLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGNEKFPSCCCTKPTDGNCTCIPIPSSWAFAKYLWEWASVRPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCFLIFGSSTTSTGFCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGSPVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMQWNSTALHQALQDPRVRGLYLPAGGSSSGTVNPAPNIASHISSISARTGDPVTIMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GVGAFGPGLTPPHGGILGWSPQAQGILTTVSTIPPPASTNRQSGRQPTPISPPLRDSHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                             Similarity 88.0
                                                                                               985
                                                                                                                      1
164
4
112
166
                                                                                              ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                      163
389
112
166
                                                                                              42653
                                      87.3%; Score 1684; D
88.0%; Pred. No. 2.4e
Live 12; Mismatches
                                                                                             MW;
                                                                                                      MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                       N-LINKED (GLCNAC. . .) (PO)
N-LINKED (GLCNAC. . .) (PO)
N-LINKED (GLCNAC. . .) (PO)
N-LINKED (GLCNAC. . .) (PO)
08079BA34F3B90C0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                       Sastrosoewignjo R.I., Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            389
                                         DB 1;
2.4e-112;
les 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ≵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389
                                       Indels
                                                              Length 389;
                                                                                                   (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                 sequence:
                                       0,
                                      Gaps
               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                      0,
```

```
밁
                             8
                                                        밁
                                                                          δ
                                                                                                                                                            RESULT 13
VMSA_HPBV9
                                                                                                      Query Match
Best Local Sim
Matches 298;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                    Antigen.
PROPEP
CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TVMSA HPBV9
P17101;
01-AUG-1990
01-AUG-1990
01-AUG-1992
                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                EMBL; X51970; CAA36230.1; -. PIR; S10383; SAVLKS.
                                                                                                                                                                                                                                                                                                                                                                                                                     Koechel H.G., Schueler A., Lottmann S., Thomssen R., Submitted (FEB-1990) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus (subtype adw / strain 991).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus
         119
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Major surface
                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10410;
                                66
                                                         59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                              6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48
AMQWNSTAFHQALQDERVRGLYFPAGGSSSGTVNPAPNIASHISSISARTGDEVTNMENI
              AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                GVGAFGFGFTFPHGGVLGWSPQAQGMLTFVSTTFPFASANRQSGRQFTFISFFLRDSHFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLSPTVMLSVIMMMWFWGPSLYNILSPFMPLLPIFFCLWVYI
                                                                                                                                                                                                                                                          PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTPAQGTSMFPSCCCTKPTDGNCTCIPIPSSWAFAKYLWEWASVRPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARPSWLSLLVPPVQWPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĊPPIĊPĠYŔŴŃĆĹŔŔŖĬĬŖĹĊĬĹĹĹĊĹĬŖĹĹŸĹĹĎŶĠĠMĹŖŶĊŖĹĬŖĠŚŚŢŢŚŢĠŖĊĸŢĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ASGLLGPLLVLQAGFFSLTKÍLTÍÞLSLDSWWTSLNFLGETFVCLGQNSQSQISSHSÞTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TSGFLGPLIVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GVGAFGPGFTPPHGGLLGWSPQAQGILTTVPTAPPPASTNRQLGRKPTPLSPPLRDTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMQWNSTTFHQTLQDPRVRALYFPAGGSSSGTVNPVQNTASSISSILSTTGDPVPNMBNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                  Similarity
                                                                                                                                                                                                                                                                _IPR000349; Hepvir_surfAg
                                                                                                                                                      1
175
15
123
177
320
400 J
                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 15, Created)
(Rel. 15, Last sequence update)
(Rel. 23, Last annotation updat
ce antigen precursor.
                                                                                                                                                        A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                 174
400
15
123
177
                                                                                                                                                        43695 MW;
                                                                                                                  87.3%;
                                                                                                      16;
                                                                                                                                                 MAJOR SURFACE ANTIGEN.

N-LINKED (GLCNAC...) (POT

                                                                                                 Score 1684; DB 1;
Pred. No. 2.5e-112;
6; Mismatches 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        À
                                                                                                                         Length 400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
                                                                                                    Indels
                                                                                                                                                                          (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                (POTENTIAL)
                                                                                                  <u>.</u>
                                                                                                Gaps
                                                 118
                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       167
                                                                                                 0
```

126

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
VMSA_HPBVT
                                                                                                        문
                                                                                                                           Ś
                                                                                                                                                        밁
                                                                                                                                                                            Ś
                         ঠ
                                                       밁
                                                                               S
       밁
                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 289; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VMSA_HPBVT
Q05496;
Q1-NOV-1995
                                                                                                                                                                                                                                                          Antigen.
PROPEP
CHAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@sisb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-NOV-1995 (Rel. 32, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis B virus (subtype adw4 / strain Brazil / isolate w4B).
Viruses, Retroid viruses, Hepadnaviridae, Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Major surface antigen precursor.
                                                                                                                                                                                                                                                                                                         EMBL; X69798; CAA49455.1; --
InterPro; IPR000349; Hepvir_
Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=45410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=93346970; PubMed=8345355;
Naumann H., Schaefer S., Yoshida C.F.T., Gaspar A.M.C., Repp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gerlich W.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Identification of a new hepatitis B virus (HBV) genotype from nat expresses HBV surface antigen subtype adw4."; Gen. Virol. 74:1627-1632(1993).
      186
                                                                                                         119
                                                        179
                                                                                 126
                                                                                                                                 66
                                                                                                                                                          59
                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLFIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTPAQGNSMPPSCCCTKPTDGNCTCIPIPSSWAPAKYLWEWASVRPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTPAQGTSMYPSCCCTKDSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPICPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLILGSTTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRMMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGPCRTC
                                                                                                                                                        GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                      AMOMNSTIFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLLPGSSTTSTGPCRTC CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLLPGSTTTSTGPCKTC
                                                        TSGLLGPLLVLQAVCPLLTKILTIPQSLDSWWTSLNFLGGLPGCPGQNSQSPTSNHLPTS
                                                                     TSGELGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                        1
175
400 AA;
                                                                                                                                                                                                         83.7%;
nilarity 84.5%;
Conservative 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                            400 MAJOR SURFACE ANTIGEN.
43551 MW; 4A5A2212E4B3E117 CRC64;
                                                                                                                                                                                                                                                                                                            Hepvir_BurfAg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                            20; Mismatches
                                                                                                                                                                                                                      Score 1615; DB 1;
Pred. No. 1.9e-107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                      Length 400;
                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                              a collaboration -
                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brazil
                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                    245
                                                            238
                                                                                     185
                                                                                                                                                                                                                0
```

```
WASA_HEBOUT 15

WASA_HEBOU

ID WASA_HEBOU

ID O1-UIL

I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                               á
Search completed: February
Job time : 14.6951 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Sim
Matches 211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE=88297159; PubMed=2841200;
MEDLINE=88297159; PubMed=2841200;
MIVER A.B., Lunin V.G., Mahov A.M., Tikchonenko T.I., Kukain R.A.
"Nucleotide sequence of integrated hepatitis B virus DNA and human
"Nucleotide sequence of integrated hepatitis B virus DNA and human
flanking regions in the genome of the PLC/PRF/5 cell line.";
Gene 64:285-296(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUL-1993 (Rel. 26,
01-JUL-1993 (Rel. 26,
01-JUL-1993 (Rel. 26,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Antigen.
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; M21030; AAA45516.1; -.
EMBL; X04820; CAA28506.1; -.
PIR; JT0293; SAVLHV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; Retroid
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Major surface antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 MENITSGELGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNH
                                                                                                                                          181
                                                                                                                                                                                                      302
                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLSPTVMLSVIMMMYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAQCTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HPBV0
                                                                                                                               OMEACT SELAMINATALANT SELETT S
                                                                                                                                                                                                                                                                      SPISCPPICPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGSPVCLGQNSQSPTSNH
                                                                                                                                                                                                                                                                                                             | CRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3
146
226 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
146
25476 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepvir_surfAg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62,9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
                                       Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
MW; BFC4329CF1720600 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence update)
                                       2003,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1214; DB
Pred. No. 2.5e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                          09:24:18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
.5e-79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                     347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358
                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

٠,

400 1 SAVLKS large surface a 1842 113469 large surface a 400 2 JQ2230 large surface p 182 2 T13474 large surface p 181 2 JQ2226 middle surface p 181 2 JQ222	1695 87.9 389 1 SAVLVB 1696 87.9 389 1 SAVLVB	1711 88.7 445 2 S43492 1704 88.3 389 1 SAVLJZ	1713 88.8 400 1 SAVIVD large surface 1713 88.8 400 1 JO1575	1723 89.3 389 2 567506 surface antige 1715 88.9 389 1 SAVIJI large surface	1745 90.5 400 2 \$35528 surface 1734 89.9 378 2 \$41870	1771 91.8 400 1 SAVLA large surface 1755 91.0 389 1 SAVLCP large surface	1797 93.3 378 2 S41869 surface	1803 93.5 389 1 SAVLAJ large surface ar 1803 93.5 399 2 S41871 surface antigen	1861 96.5 389 2 \$20753 surface antige 1851 96.0 389 3 \$20753	96.8 389 1 SAVLAH large 96.8 389 1 SAVLA1 large	1875 97.2 389 2 \$47407	97.6 389 2 S20745 97.4 389 2 S32202	98.5 389 1 SAVLBH	Result Query No. Score Match Length DB ID Description		Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.	2: pir2: * 3: pir3: * 4: pir4: *	브	i i	Post-processing: Minimum Match of	Minimum DB seq length: 0 Maximum DB seq length: 2000000000	Total number of hits satisfying chosen parameters: 283224	Searched: 283224 segs, 96134422 residues	Scoring table: BLOSUM62 Gapop 10.0 , Gapext 0.5	Title: US-09-890-752A-1 Perfect score: 1929 Sequence: 1 MGRGDGAGAFGLGFTPPHGGSILSPFLPLPIFFCLWVYI 347	Run on: February 3, 2003, 09:21:57; Search time 22.9721 Seconds (without alignments) 1452.136 Million cell updates/sec	OM protein - protein search, using sw model	Copyright (c) 1993 - 2003 Compugen Ltd.
DD 168 TSGFLGPLLVLQAGFFLLTRILTIPQS OY 186 CPPTCPGYRMMCLRRFIIFLFILLCL	126	٦	66 AM	48	ଥି	Best Local Similarity 100.0%; Matches 342; Conservative		F;4,112,166/Binding site: carbohydrat	niddle sur naior surf	C: Keywords: glycoprotein; surfac	S2/S	<pre>c;Genetics:</pre>	64-343 <no< td=""><td>A/Reference number: PQ0453; M A/Accession: PQ0585</td><td>A; Title: Molecular basis of h</td><td>.∵ # ¬₹.</td><td>35, 208-212, 1 Type ayw varia Tumber: A05237 A03704</td><td></td><td>C;Species: hepatitis B virus, HBV A;Note: host Homo sapiens (man) C;Date: 17-Mar-1987 #sequence revisi</td><td>N;Contains: major surface ant</td><td>, ,</td><td></td><td></td><td>1250 64.8 1249 64.7</td><td>1256 65. 1253 65. 1253 65. 1250 64.</td><td>36 1263 65.5 226 37 1260 65.3 226 38 1259 65.3 226 39 1257 65.2 226</td><td>1265 65.6 1264 65.5 1264 65.5</td><td>1269 65.8 1267 65.7</td></no<>	A/Reference number: PQ0453; M A/Accession: PQ0585	A; Title: Molecular basis of h	.∵ # ¬₹.	35, 208-212, 1 Type ayw varia Tumber: A05237 A03704		C;Species: hepatitis B virus, HBV A;Note: host Homo sapiens (man) C;Date: 17-Mar-1987 #sequence revisi	N;Contains: major surface ant	, ,			1250 64.8 1249 64.7	1256 65. 1253 65. 1253 65. 1250 64.	36 1263 65.5 226 37 1260 65.3 226 38 1259 65.3 226 39 1257 65.2 226	1265 65.6 1264 65.5 1264 65.5	1269 65.8 1267 65.7

ALIGNMENTS

is B virus serotype variations within the four major 107848; PMID:1469353 362280; PIDN:CAB41701.1; PID:G4704321 18, L.O. atitis B virus: DNA primary structure analysis. 204397; PMID:3996597 D.; Pumpen, P.; Gren, B. virus (subtype ayw, strain pHB320) middle surface antigen

rface antigen ntigen ntigen (gene pre-S2/S) #status predicted <DSA> cigen (gene S) #status predicted <MSA> cigen (Asn) (covalent) #status predicted Tav

core 1901; DB 1; Length 389; Fred. No. 3.3e-128; Mismatches 0; Indels 0; Gaps SLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185 LIFLLVLLDYQGMLFVCPLIFGSSTTSTGFCRTC 245 GSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125 LETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65 0

```
A;Molecule type: DNA
A;Residues: 1-389 <LAAI>
A;Cross-references: EMBL:X65257; NID:959429; PIDN:CAA46349.1;
A;Experimental source: subtype ayw, patient C
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C;Accession: $20745
R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A.; Melis, A.; Porru, RiLai, M.E. Balestrieri, A.; Melis, A.; Porru, Ribaited to the EMBL Data Library, March 1992
A;Description: Sequence analysis of HBV genomes isolated from pa A;Reference number: $20745
A;Accession: $20745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          surface antigen - hepatitis B virus (subtype ayw, patient C)
N;Alternate names: HBs antigen
N;Contains: surface antigere-S1 (large envelope protein); surface antige:
C;Species: hepatitis B virus, HBV
A;Variety: subtype ayw, patient C
C;Date: 20-reb-1995 #sequence_revision 01-Nov-1996 #text_change 26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
large surface antigen - hepatitis B virus (subtype ayw, isolate N,Contains: major surface antigen; middle surface antigen C)Species: hepatitis B virus, HBV C)Species: hepatitis B virus, HBV A,Variety: subtype ayw, isolate patient C1005 C;Date: 20-Feb-1995 #sequence_revision 06-Dec-1996 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                    RESULT
S32202
                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                               र्ठ
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-389/Product: surface antigen pre-S1 (large envelope protein) #stat 1,1-108/Domain: pre-S1 domain #status predicted <PRE1>
1,009-189/Product: surface antigen pre-S2 (middle envelope protein) #s;109-163/Domain: pre-S2 domain #status predicted <PRE2>
1,109-163/Domain: pre-S2 domain #status predicted <PRE2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;Gene: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Keywords: surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Superfamily: hepatitis B virus surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                           228
                                                                                                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                     348
                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                186
                                                                                                                                                                                                                                                                                                                                                                                                                     168
                                                                                                                                                                                                                        306
                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GISPTVWLSVIWMMWYMGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAQCTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLSPTVWLSVIWMWWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                              TSGFLGPLLVLQAGFFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMOWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASHLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAPGLGPTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRMMCLRREIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGFCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMQWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNPVPTTVSBISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                           CEPTCPGYRWMCLRRPIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                     TSGPLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                              GLSPTVWLSVIWMWYWGPSLYSILSPPLPLLDIFFCLWVYI
                                                                                                                                                                                                       GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                             TTPAQCTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                   TTPAQQTSMYDSCCCTKPSDGNCTC1PIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            338;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1883; DB 2; Length 389; Pred. No. 6.3e-127; 2; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   patient
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PID:g59430
              06-Dec-1996
                                                                                          patient C1005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           167
                                                                                                                                                                                                                                                                                                                                                                                                                               227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HB6Ag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pre-S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            negati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Em.)
```

```
A,Molecule type: DNA
A,Rosidues: 1-389 FRS>
A;Cross-references: EMBL:X72702
A;Cross-refer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Accession: S32202
R;Preisler-Adams, S.; Schlayer, M.J.; Peters, T.; Hettler, F.; Gerok, W.; Rasena submitted to the BMBL Data Library, March 1993
A;Bescription: Identification and sequence analysis of hepatitis B virus DNA in A;Reference number: S32202
A;Accession: S32202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            surface antigen - hepatitis B virus (subtype ayw4) N;Alternate names: envelope protein; HBs antigen N;Contains: surface antigen pre-S1 (large envelope C;Species: hepatitis B virus, HBV A;Variety: subtype ayw4 C;Date: 23-Nov-1994 #sequence_revision 12-May-1995 C;Accession: S47407; JQ2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                       A,Molecule type: DNA
A,Residues: 1-389 <PLU
A,COSB-references: EMBL:Z35716; NID:g527435; PIDN:CAA8478
A,CCOSB-references: EMBL:Z35716; NID:g527435; PIDN:CAA8478
A,Experimental source: subtype ayw4
A,Experimental source: subtype ayw4
R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A
Concert, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A
R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A
R;Norder, Courouce, A
R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A
A,Contents: genogroup D
A,Contents: genogroup D
A,Contents: genogroup D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                submitted to the EMBL Data Library, A;Description: Molecular cloning and A;Reference number: $47404 A;Accession: $47407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R; Plucienniczak,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
A; Molecule type: DN
A; Residues: 164-389
                                                        A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6 GAGAFGLGFTDPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMOWNSTTFHOTLODPRVRGLYFPAGGSSGGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĠĄĠĄĖĠĿĠ₽Ŧ₽₽ĦĠĠĿĿĠ₩Ś₽ŎĄŎĠĬIQŦĿ₽ĄŊ₽₽₽ĄŚTŊŔQŚĠŔQ₽Ŧ₽ĿŚ₽₽ĿĸnthpQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLSPTVMLSVIMMMYMGPSLYSILSPELPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTPAQGTSMYBSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVILLDYQGMLPVCPLIPGSSTTSAGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRMMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1FGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALNMBNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTAQGTSMYPSCCCTKPSDCNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       al Similarity
337; Conserv
                                                        JQ2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97.4%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1879; DB 2;
Pred. No. 1.2e-126;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                        August 1994
d sequencing
                                                                                                                                                                                                                                                                           PIDN:CAA84788.1, PID:g52743
                                                                                                                                                                                                                                                                                                                                                                                                                              of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein);
                                                                                                                                                                                                                                                                                                                                                                                                                              C WO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                              complete
                                                                                                                                                                                                                   A.M.; Mushahwar, I.K.; Magnius,
                                                                                                                                                              ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        surface
                                                                                                                                                              diverse
                                                                                                                                                                                                                                                                                                                                                                                                                              genomes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W.; Rasenack,
                                                                                                                                                           geographical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ant igen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         347
                                                                                                                                                                                                                                                                                                                                                                                                                                    o
f
                                                                                                                                                                                                                                                                                                                                                                                                                                       polish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pre-S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      immunolog
                                                                                                                                                                                                                                                                                                                                                                                                                                       isolate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (mide
```

^NOR

```
A;Cross-references GB:J02203

R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A.M.; Mushahwar, I.K.
J. Gen. Virol. 74, 1341-1348, 1993

A;Title: Genetic relatedness of hepatitis B viral strains of diverse geographi
A;Reference number: J02044; MUID:93329382; pMID:8336122

A;Reference number: J02044; MUID:93329382; pMID:8336122

A;Residues: 164-389 <NOR>
A;Residues: 164-389 <NOR>
A;Residues: 164-389 <NOR>
A;Residues: 164-389 <NOR>
A;Residues: 164-389 <NOR
A;Residues: 164-389 <NOR
A;Residues: 164-389 <NOR
A;Fitle: Molecular basis of hepatitis B virus serotype variations within the f
A;Accession: P00591
A;Accession: P00591
A;Accession: P00591
A;Accession: P00593 <NOR
A;Residues: 264-343 <NOR>
A;Residues: 264-343 <NOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
C;Species: hepatitis B virus, HBV
C;Accession: A03703, JQ2064; PQ0591
C;Accession: A03703, JQ2064; PQ0591
R;Galibert, F; Mandart, E.; Fitoussi, F.; Tiollais, P.; Charnay, P.
Nature 281, 646-650, 1979
A;Title: Nucleotide sequence of the hepatitis B virus genome (subtype ayw)
A;Reference number: A93214; MUID:81012091; PMID:399327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Introns: 111/3
C;Superfamily: hepatitis B virus surface antigen
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: surface antigen
F;1-389/Product: surface antigen pre-S1 (large envelope protein) #status predicted <PKE1>
F;1-108/Domain: pre-S1 domain #status predicted <PKE1>
F;109-389/Product: surface antigen pre-S2 (middle envelope protein) #status predicted
F;109-163/Domain: pre-S2 domain #status predicted <PKE2>
F;109-163/Domain: pre-S2 domain #status predicted <PKE2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-389 <GAL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
SAVLAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Experimental C; Genetics: A; Gene: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: A03703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               large surface antigen - hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
  Experimental source:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLSPTVMLSVIMMMWYMGPSLYSILSPELPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CPPTCPGYRMMCLRREIIFLEILLLCLIFLLVLLDYQGMLFVCPLIDGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYPSCCCTXPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRWMCLRRP11FLF1LLLCL1FLLVLLDYQQMLPVCPL1PGSSTTSVGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSDISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTVQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARPSWLSLLVPPVQWPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TŚGPLGPLLVĽQAGPPLLTRILTIPOSLDSWWTSLNPLGGTTVĆLGQNSOSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSDTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGAFGLGFTÞÞHGGLLGMSÞQAQGIIQTLÞANÞÞÞASTNRQSGRQÞTÞLSÞÞLRNTHÞQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
subtype ayw3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ayw3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1875; DB 2; Length Pred. No. 2.3e-126; 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   strain 8950/90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (subtype ayw)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                          geographical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
                                                                                                                             the four
                                                                                                                                                                                                                                                                                                                                                                                                            I.K.; Magnius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       coli.
                                                                                                                             major
                                                                                                                                                                                                                                                                                                                                                       origi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <PS1
```

```
N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
C;Date: 30.Sep-1991 #sequence_revision 30.Sep-1991 #text_change 16-Jul-1999
C;Accession: B34773; JQ2082
C;Accession: B34773; JQ2082
A;Title: Active hepatitis B virus replication in the presence of anti-HBe is as A;Reference number: A34773; MUID:90266476; PMID:2345966
A;Reference number: A34773; MUID:90266476; PMID:2345966
A;Roccession: B34773
A;Status: translation not shown
A;Molecule type: DNA
A;Rosferences: EMBL:M32138; NID:9329667; PIDN:AAA45502.1; PID:9329669
A;Ritle: Genetic relatedness of hepatitis B viral strains of diverse geographic A;Roccession: JQ2044; MUID:93329382; PMID:8336122
A;Accession: JQ20482
                                               C;Keywords: glycoprotein; surface antigen F;109-389/Product: middle surface antigen (gene pre-S2/S) #status predicted F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>F;4,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                            A;Gene: pre-S1/pre-S2/S
A;Introns: 111/3
                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 164-389 < NOR>
A; Experimental source: ge:
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Gene: pre-S1/pre-S2/S
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: glycoprotein; surface antigen
C;Keywords: glycoprotein; surface antigen
F;109-389/Product: middle surface antigen (gene pre-S2/S) #status predicted
F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>
F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 large surface antigen - hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                               ;Superfamily: hepatitis B virus surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLSPTVMLSVIMMMYWGDSLYSILSPELPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CPPTCPGYRMMCLRREIIFLFILLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSTFSRTGDPALNMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAFGLGFTEPHGGLLGWSPQAQGILETLPANDPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TSGFLGFLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSDISSIPSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YRWMCLRRFIIFLLLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                               genogroup
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e antigen; middle s
irus, HBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96.8%;
98.2%;
96.8%;
97.7%;
                                                                                                                                                                                                               Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1868; DB 1;
Pred. No. 7.3e-126;
                                                                                                                                                                                                               subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (strain
                                                                                                                                                                                                               ayw2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alphal)
antigen
                                                                                                                                                                                                               strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                             HBV-alpha
                                                                                                                                                                                                                                                                                                      diverse geographical origin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          107
                                                                                                                                                                                                                                                                                                                                             I.K.; Magnius,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <DSA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

Query Match

Local

Similarity

Conservative

Ş

Mismatches

Score 1868; DB 1; Pred. No. 7.3e-126;

Length 389; Indels

0

Gaps

```
C;Accession: $20753
R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A.; Melis, A.; Porru, Bubmitted to the EMBL Data Library, March 1992
A;Description: Sequence analysis of HBV genomes isolated from pat A,Reference number: $20745
A;Accession: $20753
A;Accession: $20753
A;Molecule type: DNA
A,Residues: 1-389 <LAI>
A;Cross-references: EMBL: X65259; NID: 959439; PIDN: CAA46357.1; PID
A;Experimental source: subtype ayw, patient E
C;Genetics:
A;Gene: S
C;Genetics:
A;Gene: S
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: surface antigen pre-S1 (large envelope protein)
F;109-189/Product: surface antigen pre-S2 (middle envelope protein)
F;109-189/Product: surface antigen pre-S2 (middle envelope protein)
F;109-189/Product: surface antigen pre-S2 (middle envelope protein)
F;109-189/Product: surface antigen S (small envelope protein)
F;109-189/Product: surface antigen S (small envelope protein)
F;109-189/Product: surface antigen S (small envelope protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       surface antigen - hepatitis B virus (subtype ayw, patient E)
N;Alternate names: envelope protein; HBs antigen
N;Contains: surface antigen pre-S1 (large envelope protein);
C;Species: hepatitis B virus, HBV
A;Variety: subtype ayw, patient E
C;Date: 20-reb-1995 #sequence_revision 01-Nov-1996 #text_chan
C;Accession: $20753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
S20753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유 &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                       ş
                                                                                                                                              밁
                                                                                                                                                                             ક
                                                                                                                                                                                                                        밁
                         S
                                                                      밁
                                                                                                 ঠ
밁
                                                                                                                                                                                                                                                                                                                                                                  ;Reywords: surface antigen
;1-389/product: surface antigen pre-S1 (large envelope protein) #st
;1-108/Domain: pre-S1 domain #status predicted <PRE1>
;1-108/Domain: pre-S1 domain #status predicted envelope protein)
;109-389/Product: surface antigen pre-S2 (middle envelope protein)
;109-163/Domain: pre-S2 domain #status predicted <PRE2>
;164-389/Product: surface antigen S (small envelope protein) #statu
                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        48
228
                                    186
                                                                         168
                                                                                                                                                  108
                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                     66
                                                                                                                                                                                                                          48
                                                                                                                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAPGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRWMCLRRPITFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGFCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTKILTIFKSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMQWNSTTFHQTLQDPRVRGLYLPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AMOMNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKPLWEWASARESWLSLLVPFVQWFV
                                                                                                                                                                                                                                             GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                         TSGELGPLLVLQAGEFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSISARTGDPALNMENI
                                                                                                                                                                                                                        GAGAFGLGFTPPHGGLLGWSPQAQGILHTVPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                             CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                   AMQWNSTTFHQTLQDFRVRGLYFFAGGSSSGTVNFVFTTVSFISSIFSRIGDFALMMENI 125
Similarity
                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                   96.5%;
97.7%;
                                                                                                                                                                                                                                                                                                    3
                                                                                                                                                                                                                                                                                                                     Score 1861;
Pred. No. 2.
                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                     DB 2;
2.3e-125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347
                                                                                                                                                                                                                                                                                                                                       Length 389;
                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Porru,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          patients
                                                                                                                                                                                                                                                                                                                                                                               #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID: 959440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-Aug-1999
                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                        #status
                                                                                                                                                                                                                                                                                                                                                                                                                 #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                107
                                                                                                                                                                                                                                                                                                                                                                               predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                with
                                                                                                                                                         167
                                                                                                                                                                                                                                                                    65
                                            245
                                                                               227
                                                                                                                                                                                                                                                                                                                                                                                                                                                        predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HBBAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pre-S2
                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                         <PS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Œ.
```

surface antigen - hepatitis B virus (su N;Alternate names: envelope protein; HB N;Contains: surface antigen pre-S1 (lar C;Species: hepatitis B virus, HBV A;Variety: subtype ayw, patient P C;Date: 06-Jan-1995 #sequence_revision C;Accession: \$41871

B virus (subtype ayw, patient protein, HBs antigen pre-S1 (large envelope protei

protein);

surface

antigen

pre-S2

â

9

06-Jan-1995

#text_change

26-Aug-1999

R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, submitted to the EMBL Data Library, January A;Description: Sequence analysis of HBV gen

January HBV genc

genomes

isolated

from

patients

with

HBsAg

chroni

> 1994

```
large surface antigen - hepatitis B virus (subtype adyw)
N, Contains: major surface antigen; middle surface antigen
C, Species: hepatitis B virus, HBV
C, Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 15-Nov-1996
C, Accession: A93217; A03703
R, Pasek, M, Goto, T.; Gilbert, W.; Zink, B.; Schaller, H.; MacKay, P.; Leac
Nature 282, 575-579, 1979
A, Title: Hepatitis B virus genes and their expression in E. coli.
A, Title: Hepatitis B virus genes and their expression in E. A; A; Reference number: A93217, MUID:81012115; PMID:399329
A, Accession: A93217
A, Reference: 1-389 < PAS>
A, Cross-references: GB:J02202
C, Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: pre-S1/pre-S2/S
C;Superfamily: hepatitits B virus surface antigen
C;Superfamily: hepatitits B virus surface antigen
C;Keywords: glycoprotein; surface antigen
F;109-389/Product: middle surface antigen (gene pre-S2/S) #status predicted
F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>
F;164-389/Product: major surface antigen (gene S) #status predicted
F;4,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멂
                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                 Ś
                                                                                                                                         밁
                                                                                                                                                                   S
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                         밁
멂
                          S
                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       348
                                                                                                                                                                                                                                                                                       108
                                                                                                                                                                              186
                                                                                                                                                                                                                  168
                                                                                                                                                                                                                                                    126
                                                                                                                                            228
 348
                                 306
                                                                       288
                                                                                                         246
                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                             48
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLSPTVWLSVIWMMYYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPISNHSPTS
                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                     AMHWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTTSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                        AMOMNSTTFHOTLODERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                            CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLDVCPLIPGSSTTSTGSCRTC
 GLSPIVWLSVIWWWWYWGPSLYSILSPFLPLLPIPFCLWAYI
                    TTPAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARFSWLSLLVPFVQWFV
                                                                                          TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPFVOWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ce antigen - hepatitis B virus major surface antigen; middle
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                     96.0%;
97.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1851; DB 1;
Pred. No. 1.2e-124;
2; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (subtype adyw)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                  287
                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                      107
                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                 167
                                                                                                                                                                                                                                                             185
                                                                                                                  305
                                                                                                                                                                                        245
                                                                                                                                                                                                                           227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Leadbetter,
                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>.</u>.
```

ດ :

```
A; Description: Sequence analysis of HBV genomes isolated from patient A; Peterspice number: $41869
A; Reference number: $41869
A; Accession: $1.378 < LIAI>
A; Residues: 1.378 < LIAI>
A; Cross-references: EMBL: X77309; NID: 9452611; PIDN: CAA54515.1; PID: 94
A; Experimental source: subtype ayw, patient A
C; Genetics:
A; Genetics: A; Genetics: Superfamily: hepatitis B virus surface antigen
C; Keywords: surface antigen pre-$1 (large envelope protein) #st;
F; 1.378/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #st;
F; 1.99-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-378/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
F; 1.64-178/Product: surface antigen pre-$2 (middle envelope protein) #s;
                                                                                                                                                                                                                                                                                                                                                                                                                               C;Accession: S41869
C;Accession: S41869
R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A.
submitted to the EMBL Data Library, January 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Reference number: S41869
A;Accession: S41871
A;Molecule type: DNA
A;Residues: 1-389 < LAI>
A;Cross-references: EMBL:X77310; NID:g452615; PIDN:CAA54516.1; PID:g452616
A;Cross-references: EMBL:X77310; NID:g452615; PIDN:CAA54516.1; PID:g452616
A;Experimental source: subtype ayw, patient P
C;Genetics:
A;Gene: S
C;Genetics: Suface antige antigen
C;Keywords: surface antigen pre-S1 (large envelope protein) #status
C;Keywords: surface antigen pre-S1 (large envelope protein) #status
F;1-108/Domain: pre-S1 domain #status predicted <PRE1>
P;1-108/Domain: pre-S1 domain #status predicted <PRE1>
P;1-108/Domain: pre-S1 domain #status predicted <PRE1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Variety: subtype ayw, patient A
C;Date: 06-Jan-1995 #sequence_revision
C;Accession: S41869
R;Lai, M.E.; Mazzoleni, A.P.; Balestrie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N;Contains: surface antigen pre-S1 (large envelope C;Species: hepatitis B virus, HBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       surface antigen - hepatitis B virus (subtype ayw, patient N;Alternate names: envelope protein; HBs antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;164-389/Product: surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;109-389/Product: surface antigen pre-S2 (middle envelope protein)
;109-163/Domain: pre-S2 domain #status predicted <PRE2>
;164-389/Product: surface antigen S (small envelope protein) #statu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLSPTVWLLGIWMWYWGHSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIPPCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVGFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCFLIFGSSTTSTGFCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CPPTCPGYRWMSRRRF11FLF1LLLCL1FLLVLLDYQGMLFVCPL1PGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMQWNSTTPHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSHISSIPARTGEPVTIMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAFGLGFTPPHGGLLGWSPQAQGILQTVPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1803; DB 2;
Pred. No. 3.1e-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-Nov-1996
envelope protein) #status predicted <PSD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.1e-121;
1es 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIDN:CAA54516.1; PID:g452616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                            protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                        patients
                                                                                                                                                                                                                                                                                              PID:9452612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-Aug-1999
                                                                                                                  #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                     with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        227
                                                                                                               predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 predicted
                                                                                                                                                                                                                                                                                                                                                                                                                               HBsAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pre-S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                     chron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <PS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (mid
```

```
A;Residues: 1-389 cLAI>
A;Cross-references: EMBL:X65258; NID:g59434; PIDN:CAA46353.1;
A;Cross-references: EMBL:X65258; NID:g59434; PIDN:CAA46353.1;
A;Roperimental source: subtype ayw, patient CI
A;Note: typical methionine for the beginning of pre-S2 domain C;Genetics:
A;Gene: S
C;Guperfamily: hepatitis B virus surface antigen C;Keywords: surface antigen C;Keywords: surface antigen C;Keywords: surface antigen Pre-S1 (large envelope protein)
F;1-389/Product: surface antigen S (small envelope protein)
                         Ş
                                                     맑
                                                                           S
                                                                                                            밁
                                                                                                                                      Ś
                                                                                                                                                                         뭕
                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Species: hepatitis B vīrus, HBV
A;Variety: subtype ayw, patient CI
C;Date: 20-Feb-1995 #sequence_revision 01-Nov-1996 #text_change
C;Accession: S20749
R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A.; Melis, A.; Porru,
                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number:
A; Accession: S20749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        surface antigen - hepatitis B virus (subtype ayw, N;Alternate names: envelope protein; HBs antigen N;Contains: surface antigen pre-Sl (large envelope
                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Description:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     submitted to the EMBL Data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 324
                         185
                                                      167
                                                                                   125
                                                                                                               107
                                                                                                                                              65
                                                                                                                                                                          47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                348 GLSPTVWLSVIWMWWWGPSLYSILSPFLPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                       Çŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 GAGAPGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
SCEPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRT
                                           ITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFRGGTTVCLGQNSQSFTSNHSFT
                                                                                                                        QAMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMEN
                                                                                                                                                                                 DGAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHP
                                                                ITSGFLGPLLVLQAGFELLTRILTIPQSLDSWATSLNFLGGTTVCLGQNSQSPTSNHSPT
                                                                                                               QAVQWNSTT
                                                                                                                                                               DGAGAFGLGLTPPHGGLLGWSPQAQGILHTVPANPPPASTNRQTGRQPTPLSPPLRDTHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVWLSVIWMMWWWGPSLYSILSPFLPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTPAQGTSMYPSCCCTXPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TSGPLGPLLVLQAGFFLLTRİLTİPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAFGLGFTPPHGGLLGWSPQAQGILQTVPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 324;
                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence analysis
                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                       PHQTLQDPRVRGLYPPAGGSSSGTVNPVPTTASPLSSIFSRIGDPVTNMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                             i, A.P.; Bare.
Justa Library, March 1992
Shalveis of HBV genomes i
                                                                                                                                                                                                                                            93.2%;
93.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93.3%;
                                                                                                                                                                                                                           Score 1797; DB 2;
Pred. No. 8.4e-121;
L1; Mismatches 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1799; DB 2;
Pred. No. 5.9e-121;
3; Mismatches 4;
                                                                                                                                                                                                                                                                                  S1 (large envelope protein) #status protein) #status protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     envelope protein); surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Melis, A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     patient
                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Porru,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ü
                                                                                                                                                                                                                                                                                                                                                                             at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 patients with
                                                                                                                                                                                                                                                                                                                                                                                                       PID:g59435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-Aug-1999
                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                          position
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                  predicted <PO
                                           226
                 244
                                                                           184
                                                                                                       166
                                                                                                                                                                 106
                                                                                                                                   124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HBsAg
                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ø
                                                                                                                                                                                                                                                                                                                                                                          18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (small
                                                                                                                                                                                                                                                                                                                                                                        missing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               negativ
                                                                                                                                                                                                                                                                                                 <PS1>
```

g

```
R;Norder, H.; Hammas, B.; Lee, S.D.; Bile, K.; Courouce, A.M.; Mushahwar, I.K.; Magnius, J. Gen. Virol. 74, 1341-1348, 1993

A;Title: Genetic relatedness of hepatitis B viral strains of diverse geographical origin A;Reference number: JQ2044; MUID:93329382; PMID:8336122

A;Accession: JQ2107

A;Molecula type: DNA
A;Residues: 175-400 <NOR>
A;Experimental source: genogroup C, subtype adr, strain pBRHBadr4
A;Experimental source: genogroup C, subtype adr, strain pBRHBadr4
A;Experimental source: genogroup C, subtype adr, strain pBRHBadr4
A;Felicular basis of hepatitis B virus serotype variations within the four major A;Fitle: Molecular basis of hepatitis B virus serotype variations within the four major A;Ference number: PQ0453; MUID:93107848; PMID:1469353
A;Accession: PQ0608
A;Experimental source: subtype adrq+, Bau
C;Genetics: C;Cenetics: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               large surface antigen - hepatitis B virus (subtype adr)
N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
C;Species: hepatitis B virus, HBV
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 07-May-1999
C;Accession: A03705; S04569; JQ2107; PQ0608
C;Accession: A03705, S04569; JQ2107; PQ0608
R;Ono, Y; Onda, H.; Sasada, R.; Igarashi, K.; Sugino, Y.; Nishioka, K.
Nucleic Acids Res. 11, 1747-1757, 193
A;Reference number: A93460; MUID:83168919; PMID:6300776
A;Accession: A03705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
SAVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:V00867
R;Rho, H.M.; Kim, K.; Hyun, S.W.; Kim, Y.S.
Nucleic Acids Res. 17, 2124, 1989
A;Title: The nucleotide sequence and reading frames of a A;Reference number: S04568; MUID:89183619; PMID:2928116
A;Accession: S04569
A;Accession: S04569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Residues: 1-50,'R',52-66,'YP',69-129,'V',131-142,'P',144-164,'S',166-176,'S',178-338,
A;Cross-references: EMBL:XI4193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-400 < ONO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A, Status: translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Gene: pre-S1/pre-S2/S
                                                                                                                                                         ঠ
                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                    Ş
                                 S
                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Superfamily: hepatitis B virus surtace antigen (Superfamily: hepatitis B virus surtace antigen); Reywords: glycoprotein; surface antigen (gene pre-S2/S) #status predicted (1100-400/Broduct: middle surface antigen (gene S) #status predicted (MSA» (175-400/Broduct: major surface antigen (gene S) #status predicted (153,177/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Sim
Matches 315;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                       126
                                                                                   119
                                                                                                                                                               66
                                                                                                                                                                                                                               59
                                                                                                                                                                                                                           CTTPAQGNSMFPSCCCTKTSDGNCTCIPIPSSWAPAKYLWEWASVRFSWLSLLVPFVQWF 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTPAQGTSMYPSCCCTXPSDGNCTCIPIPSSWAFGXFLWEWASARESWLSLLVPFVQWF 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SCPPTCPGYRWMCLRGF11FLF1LLLCL1FLLVLLEYQGMLHVCPL1PGTTTTSTGPCKT
TSGFLGPLLVLQAGEFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                AMQWNSTTFHQALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRTGDPAPNMENT 178
                                                                                                                                        AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                 h 91.8%; Score 1771; DB 1; Length 400; Similarity 92.1%; Pred. No. 6.1e-119;
                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                    10;
                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mutant hepatitis B
                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     286
                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA; subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            virus subtyp
                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                         S
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                    á
                                                                                         밁
```

```
large surface antigen - hepatitis B virus
N;Contains: major surface antigen; middle surface antigen
C;Species: hepatitis B virus, HBV
C;Date: 30-Jun-1989 #sequence_revision 30-Jun-1989 #text_change 16-Jun-2000
C;Accession: C28885; JQ2123
R;Vaudin, M; Wolstenholme, A.J.; Tsiquaye, K.N.; Zuckerman, A.J.; Harrison, T.J.
J. Gen. Virol. 69, 1383-1389, 1988
J. Gen. virol. 69, 1383-1389, 1988
J. Gen. virol. 69, 1383-1389, 1988
A;Title: The complete nucleotide sequence of the genome of a hepatitis B virus isolated if A;Title: The complete nucleotide sequence of the genome of a hepatitis B virus isolated if A;Title: The complete nucleotide sequence of the genome of a hepatitis B virus isolated if A;Title: The complete nucleotide sequence of the genome of a hepatitis B virus isolated if A;Title: The complete number: A92796; MUID:88258473; PMID:2838576
A;Rocession: C28885
A;Rocession: C28885
A;Cosss-references: GB:D00220; NID:9221505; PIDN:BAA00159.1; PID:9221508
A;Experimental source: Strain LSH, Chimpanzee
A;Experimental source: Subtype adw2, strain adwLSH
A;Experimental source: Subtype adw2, strain adwLSH
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genetics:
C;Genet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: pre-S1/pre-S2/S; S
C;Superfamily: hepatitis B virus surface antigen
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: glycoprotein; surface antigen
F;109-389/Product: middle surface antigen (gene pre-S2/S) #status predicted <MSA>
F;164-389/Product: major surface antigen (gene S) #status predicted <MSA>
F;44,112,166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                            168
                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                           228
                                                                                                                                                                                                                                  186
306
                                                          288
                                                                                                              246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
les 313; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6 GAGAPGLGETEPHGGLLGWSBQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĊPPIĊPGYRWMCLRRPIIFLFILLLCLIFLLVLLDYQGMLPVCPLLPGTSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLSPTVMLSVIMMMYWGPSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTC
                                                                                                                                                                                                                                                                                         AMOWNSTTFHOTLODERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91.0%;
91.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1755; DB 1;
Pred. No. 8.2e-118;
9; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                       245
                                                                                  347
                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <DSA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
surface antigen - hepatitis B virus (subtype ayw, p N,Alternate names: envelope protein; HBs antigen N;Contains: surface antigen pre-S1 (large envelope C;Species: hepatitis B virus, HBV A;Variety: subtype ayw, patient M C;Date: 06-Jan-1995 #sequence_revision 01-Nov-1996 C;Accession: S41870
                                                                                                                                 RESULT
S41870
                                                                                                                                                                                                        용
                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Introns: 165/2

(;Superfamily: hepatitis B v

C;Keywords: surface antigen

F;1-400/Product: surface ant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: EMBL:D12980; NID:g221500; PIDN:BAA02359.1; PID:g221502
A;Experimental source: subtype adr
A;Note: the nucleotide sequence was submitted to the EMBL Data Library. And C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic Acids Res. 20, 6105, 1992
A;Title: The complete nucleotide sequence of hepatitis B virus, subtype A;Reference number: $35527; MUID:93096607; PMID:1461746
A;Recession: $35528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: nucleic ac
A;Molecule type: DNA
A;Residues: 1-400 <M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Variety: subtype adr
G;Date: 09-Dec-1993 #sequence_revision 10-Nov-1995 #text_change 20-Jun-2000
C;Accession: S35528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           surface antigen -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;1-400/Product: surface antigen pre-S1 (large envelope protein) #s1;1-119/Domain: pre-S1 domain #status predicted <PRE1>;120-400/Product: surface antigen pre-S2 (middle envelope protein);120-174/Domain: pre-S2 domain #status predicted <PRE2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175-400/Product:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              urface antigen - hepatitis B virus (subtype adr)
Alternate names: envelope protein; HBs antigen
COntains: surface antigen pre-S1 (large envelope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gene: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Accession: S35528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Species: hepatitis B virus, HBV
                                                                                                                                                                                                                                        306
                                                                                                                                                                                                      359
                                                                                                                                                                                                                                                                           299
                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           119
                                                                                                                                                   15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348 GLSPTVWLLAIWYMWYNGPNLYNILSPEIPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                             GLSPTVWLSVIWMWYWGPSLYSILSDFLDLLDIFFCLWVYI
                                                                                                                                                                                               GLSPTVWLSVIWNMWYWGPSLYNILSPELPLLPIFFCLWVYI
                                                                                                                                                                                                                                                              TIPAQGTSMFPSCWCTKPSDGNCTCIPIPSSWAFARFLWEWASVRFSWLSLLVPFVQWFA 358
                                                                                                                                                                                                                                                                                          TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                   CPPTCPGYRWWCLKRF11FLF1LLLCL1FLLVLLDYQQMLPVCPLLPGTSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                        CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                             TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  311;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMOMNSTTFHOALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRTGDPAPNWEST 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGDEGPGFTPPHGGLLGWSPQAQGILTTVPAAPPPASTNRQSGRQPTPISPPLRDSHPQ 118
                                                                                                                                                                                                                                                                                                                                                                                                         TSGPLGPLLVLQAGFFLLTRILTÍPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-400 <MUK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acid sequence not shown; translation not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              surface antigen S (small envelope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90.5%; Score 1745; DB 2; 90.9%; Pred. No. 4.3e-117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.3e-117;
                                                                                                     patient M)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20;
             #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein); surface antigen
                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                               surface antigen
                                                                                                     (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              predicted
                                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                                                     298
                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                         238
                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          August
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       adr (SRADR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              predicted
                                                               pre-S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pre-S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <PS1
                                                                 Œ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (mi
```

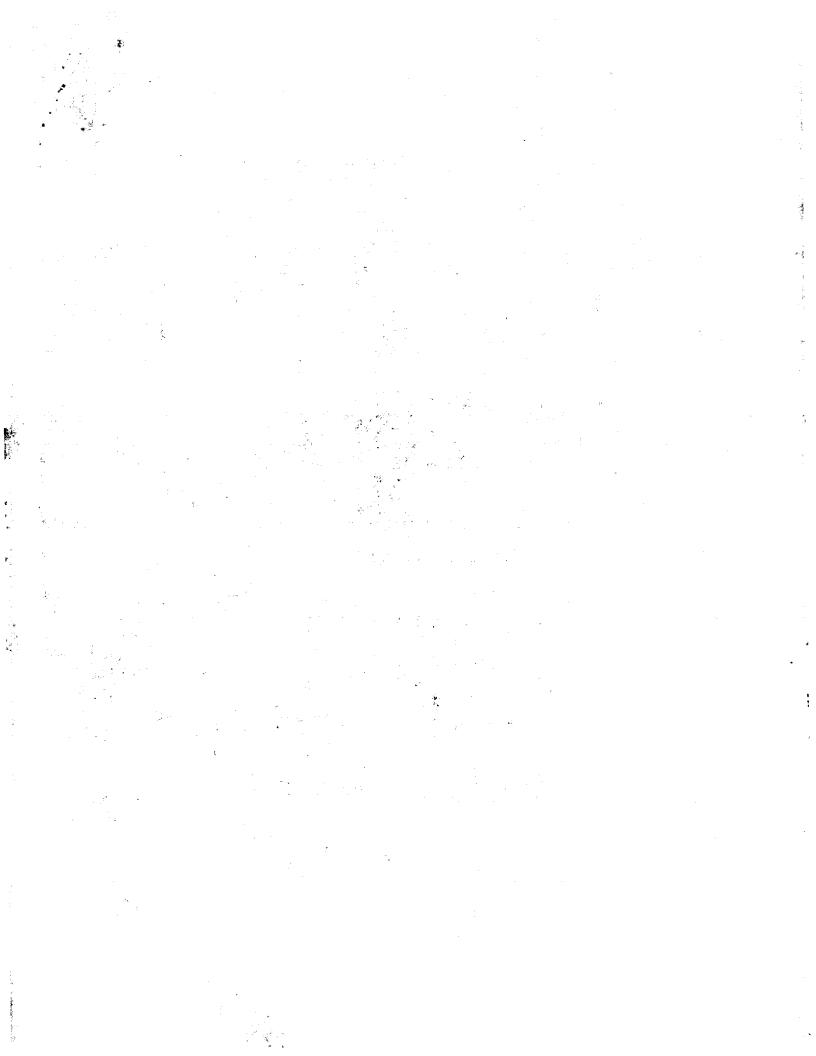
Search completed: February Job time : 23.9721 secs

'n 2003,

09:26:27

```
밁
                                      δ
                                                                          밁
                                                                                                       Ş
                                                                                                                                           밁
                                                                                                                                                                             Ś
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Gene: S
C;Superfamily: hepatitis B virus surface antigen
C;Keywords: surface antigen
                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;1-108/Domain: pre-S1 domain #status predicted <PRE1>
F;109-378/Product: surface antigen pre-S2 (middle envelope protein) #s
F;109-163/Domain: pre-S2 domain #status predicted <PRE2>
F;109-163/Domain: surface antigen S (small envelope protein) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;1-378/Product: surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:X77308; NID:g452613; PIDN:CAA54514.1; PID:g452614
A;Experimental source: subtype ayw, patient M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                submitted to the EMBL Data Librar A;Description: Sequence analysis A;Reference number: S41869 A;Accession: S41870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A. submitted to the EMBL Data Library, January 1 A;Description: Sequence analysis of HBV genom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-378 <LAI>
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 311; Conserv
       348
                                       306
                                                                            288
                                                                                      246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                               228
                                                                                                                                                                               186
                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                                                   99
                                                                                                                                                                                                                                                                                                                                                    48
                                                                                                                                                                                                                                                                                                                                                                                       σ
                       GLSPTVWLSVIWMWWWGPSLYSILSPFLPL
GLSPTVWLSAIWMWWWGPSLYSIVMPFIPL
                                                                                                                                                      CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGBCRTC
                                                               TTPAQGTSMYPSCCCTKPSHGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPFVQWFM
                                                                                                                                  CPPICPGYRWMCLRRF1FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTGPCRTC
                                                                                                                                                                                                     TSGPLGPLLVLQAGEFILTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                     TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                      AMQMNSTTFHOTLODPRVRGLYFPAFGSSSGTVNPVLTTASPLSSISARTGDPVTIMENT
                                                                                                                                                                                                                                                                                                                                         GAGAFGLGFTPPHGGLLGWSPQAQGILQTVPANPPPASTNRQSGRQPTPLSPPLRKTHPQ
                                                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPI8SIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             antigen pre-S1 (large envelope protein) #status predicted <PS1>
                                                                                                                                                                                                                                                                                                                                                                                                                                  89.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                   7;
                                                                                                                                                                                                                                                                                                                                                                                                                Score 1734; DB 2;
Pred. No. 2.5e-116;
7; Mismatches 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         January 1994
HBV genomes isolated from patients with HBsAg
                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 378;
                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #status
                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 predicted
                                                                 347
                                                                                                                                                                    245
                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                        167
                                                                                                                                                                                                                                                                                                         125
                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                       227
                                                                                                                                                                                                                                                                                                                                           107
                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <PSD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           chronic
```

£



180, Appl 14, Appl 13355, Ap 3355, Ap 3355, Ap 3355, Ap 3355, Appl 33, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl 30, Appl

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         is the number of results predicted by chance to have a ater than or equal to the score of the result being printed, rived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
Gapop 10.0 , Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pending_Patents AA New:*

1: /cgn2_6/ptodata/1/paa/PCT_NEW_COMB.pep:*

2: /cgn2_6/ptodata/1/paa/US06_NEW_COMB.pep:*

3: /cgn2_6/ptodata/1/paa/US07_NEW_COMB.pep:*

4: /cgn2_6/ptodata/1/paa/US08_NEW_COMB.pep:*

5: /cgn2_6/ptodata/1/paa/US09_NEW_COMB.pep:*

6: /cgn2_6/ptodata/1/paa/US09_NEW_COMB.pep:*

7: /cgn2_6/ptodata/1/paa/US00_NEW_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MGRGDGAGAFGLGFTPPHGG.....SILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       February 3, 2003, 09:24:27; Search time 28.4129 Seconds (without alignments) 988.252 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              404799 seqs, 80919614 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.3 (c) 1993 - 2003 Compugen
        PCT-US02-32263-46
US-10-287-994-46
US-10-326-908-19
US-10-326-908-18
US-10-326-908-18
US-10-326-908-21
US-10-326-908-20
US-09-863-054-22
US-09-724-676-50955
US-09-724-676-50955
US-09-724-676A-50955
US-09-724-676A-50955
US-09-724-676A-50953
US-09-724-676A-50953
US-09-724-676A-50954
US-09-724-676A-50954
US-09-724-676A-50954
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-724-676A-94342
US-09-863-054-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Prt
Sequence 46, Appl Sequence 21, Appl Sequence 21, Appl Sequence 19, Appl Sequence 20, Appl Sequence 20, Appl Sequence 50955, A Sequence 50955, A Sequence 50956, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 50951, A Sequence 317, Appl Sequence 15, Appl Sequence 15, Appl Sequence 94342, A Sequence 94342, A Sequence 94342, A Sequence 94342, A Sequence 13, Appl Sequence 13, Appl Sequence 13, Appl Sequence 13, Appl Sequence 13, Appl Sequence 295, Appl Sequence 295, Appl Sequence 13, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Sequence 295, Appl Seque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                                                                                                                                                                                                                                                                                     Sequence 46, Application PC/TUS023263

GENERAL INFORMATION:

APPLICANT: Neose Technologies, Inc.

APPLICANT: DeFrees, Shawn

APPLICANT: DeFrees, Shawn

APPLICANT: Bowe, Caryn

APPLICANT: Bowe, Caryn

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANT: Hakes, David

APPLICANTON NUMBER: US 60/32253

PRIOR APPLICATION NUMBER: US 60/344,692

PRIOR APPLICATION NUMBER: US 60/344,692

PRIOR APPLICATION NUMBER: US 60/344,233

PRIOR APPLICATION NUMBER: US 60/344,233

PRIOR APPLICATION NUMBER: US 60/344,301

PRIOR APPLICATION NUMBER: US 60/344,301

PRIOR APPLICATION NUMBER: US 60/347,777

PRIOR APPLICATION NUMBER: US 60/391,777

PRIOR APPLICATION NUMBER: US 60/391,777

PRIOR APPLICATION NUMBER: US 60/391,777

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396,594

PRIOR APPLICATION NUMBER: US 60/396
                           片
                                                                    Ş
                                                                                                                                                                                                                              ; LENGTH: 400
; TYPE: PRT
; ORGANISM: Hepatitis
PCT-US02-32263-46
                                                                                                                        Query Match
Best Local S
Matches 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 1
PCT-US02-32263-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
     95.55
95.55
95.55
95.55
95.55
95.55
95.55
95.55
95.55
                                                                                                             h 91.0%; Score 1756; DB 1; Similarity 91.2%; Pred. No. 4.5e-106; 12; Conservative 11; Mismatches 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1251
1251
1367
1367
13441
17
606
606
606
606
606
606
606
798
                                                                                                                                                                                                                                                      virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCT-US02-10780-80
US-10-281-346-4
PCT-US02-40225-3355
US-10-281-366-4
PCT-US02-40225-3355
US-10-170-682-3
US-09-863-054-30
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86513
US-09-724-676-86526
US-09-724-676-86526
US-09-724-676-86526
US-09-724-676-86526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALIGNMENTS
                                                                                                                                                                 Length 400;
                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
Sequence
Sequence
```

Result

Score

Query Match

Length

DB

Pred. No. is th score greater than and is derived

0

Gaps

0,

Minimum DB Maximum DB

seq length: 0
seq length: 2000000000

Total number of

Scoring table:

Title: Perfect score:

US-09-890-752A-1 1929

ş

protein -8

Copyright

```
HAPPLICAMI: CHEM, AL
TITLE OF INVENTION, REMODELING AND GLYCOCONJUGATION OF PEPTIDES
PILE REFERENCE: 040853-01-5052-00
PILE REFERENCE: 040853-01-5052-00
PRIOR APPLICATION NUMBER: US/10/287,994
CURRENT FILING DATE: 2001-11-05
PRIOR APPLICATION NUMBER: US 60/328,523
PRIOR APPLICATION NUMBER: US 60/344,692
PRIOR APPLICATION NUMBER: US 60/344,692
PRIOR APPLICATION NUMBER: US 60/387,292
PRIOR APPLICATION NUMBER: US 60/387,292
PRIOR APPLICATION NUMBER: US 60/391,777
PRIOR APPLICATION NUMBER: US 60/391,777
PRIOR APPLICATION NUMBER: US 60/391,777
PRIOR APPLICATION NUMBER: US 60/396,594
PRIOR APPLICATION NUMBER: US 60/396,594
PRIOR FILING DATE: 2002-06-25
PRIOR FILING DATE: 2002-08-25
PRIOR APPLICATION NUMBER: US 60/404,249
PRIOR APPLICATION NUMBER: US 60/404,249
PRIOR FILING DATE: 2002-08-16
PRIOR APPLICATION NUMBER: US 60/407,527
PRIOR APPLICATION NUMBER: US 60/407,527
PRIOR APPLICATION NUMBER: US 60/407,527
PRIOR FILING DATE: 2002-08-28
NUMBER OF SEQ ID NOS: 62
SOFTWARE: PASCENTIAL VERSION 3.1
SEQ ID NO 46
LENGTH: 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 2
US-10-287-994-46
                                                                                                                                                       밁
                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                 ) ORGANISM: Hepatitis B virus US-10-287-994-46
                                ş
                                                                           당
                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 46, Applica
GENERAL INFORMATION:
                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                     Matches 312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: DeFrees, Shawn APPLICANT: Zopf, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Neose Technologies, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           359 GLSPTVWLSVIWMWWWGPSLYNILSPFLPLLPIFFCLWVYI 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                        126
                                                                             119
                                                                                                                                                         59
                                                                                                                  66
                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSFTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMQMNSTTFHQALLDÞRVRGLYFÞAGGSSSGTVNÞVÞTTVSÞÍSSÍÞSRTGDÞAÞNMEST 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TSGPLGPLLVLQAGPFLLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMOWNSTTEHOTLODERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIPAQGTSMFPSCCCTKPSDGNCTCIPIPSSWAFARFLWEWASVKFSWLSLLVPFVQWFA 358
                                                                                                                                                         GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                         AMQWNSTTFHQTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
TSGFLGPLLVLQAGPFLLTRILTIPQSLDSWMTSLNFLGGAPTCPGQNSQSPTNNHSPTS
                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hakes, Da
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bayer, Robert
Bowe, Caryn
Hakes, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/10287994
                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                     91.0%; Score 1756; DB 6; Length 400;
91.2%; Pred. No. 4.5e-106;
tive 11; Mismatches 19; Indels
                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         238
          238
                                                                                                                                                                                                                                                0
```

```
TITLE OF INVENTION: Designing Immunogens
FILE REFERENCE: 117-433 / N78027D
CURRENT APPLICATION NUMBER: US/10/326,908
CURRENT FILING DATE: 2002-12-33
PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR PILING DATE: 2002-04-08
PRIOR APPLICATION NUMBER: CT/(GB00/03857
PRIOR FILING DATE: 2000-10-06
PRIOR APPLICATION NUMBER: GB 0007789.1
PRIOR APPLICATION NUMBER: GB 9923902.2
PRIOR APPLICATION NUMBER: GB 9923902.2
PRIOR FILING DATE: 1999-10-08
NUMBER OF SEQ ID NO 21
LENGTH: 67
TYPE: DET
Sequence 19. Application US/10326908
GENERAL INFORMATION:
APPLICANT: Christopher JONES
APPLICANT: GHILDOHES
APPLICANT: GHILDOHES
APPLICANT: GILL DOUCE
APPLICANT: GILL DOUCE
ITILE OF INVENTION: Designing Immunogens
FILE REFERENCE: 117-433 / N78027D
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REFERENCE: 117-435
FULE REF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-326-908-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: synthetic peptide immunogen US-10-326-908-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-326-908-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 21, Applica GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 15.6%; Score 300; DB 6; 1 Best Local Similarity 100.0%; Pred. No. 8.3e-13; Matches 57; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Christopher JONES
APPLICANT: Andrew BACON
APPLICANT: Gill DOUCE
APPLICANT: Mark PAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVMLSVIMMMYMGPSLYSILSPELPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIPAQGTSMFPSCCCTKPSDGNCTCIPIPSSWAFARFLWEWASVRFSWLSLLVPFVQWFA 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CPPICPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLLPGTSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/10326908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
SEQUENCE 20, Application US/10326908
GENERAL INFORMATION:
APPLICANT: Christopher JONES
APPLICANT: Addrew BACON
APPLICANT: Gill BOUCE
APPLICANT: Mark PAGE
TITLE OF INVENTION: Designing Immunogens
FILE REFERENCE: 117-433 / N78027D
CURRENT APPLICATION NUMBER: US/10/326,908
CURRENT FILING DATE: 2002-12-23
PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR APPLICATION NUMBER: PCT/GB00/03857
                                                                                                                                                                                                                              RESULT 6
US-10-326-908-20
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-326-908-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQ ID NO
SOFTWARE: MS WORD
SEQ ID NO 18
LENGTH: 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-326-908-19
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                      -10-326-908-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Christopher JONES
APPLICANT: Andrew BACON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 18,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 10/110,036
PRIOR FILING DATE: 2002-04-08
PRIOR PPLICATION NUMBER: PCT/GB00/03857
PRIOR PILING DATE: 2000-10-06
PRIOR APPLICATION NUMBER: GB 0007789.1
PRIOR FILING DATE: 2000-03-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS:
SOFTWARE: MS Word
SEQ ID NO 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: GB 9923902.2 PRIOR FILING DATE: 1999-10-08 NUMBER OF SEQ ID NOS: 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/10/326,908
CURRENT FILING DATE: 2002-12-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Designing Immunogens FILE REFERENCE: 117-433 / N78027D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION: synthetic peptide immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: synthetic peptide immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 64
                                                                                                                                                                                                                                                                                           40 GAGAFGLGFTPPHGGLLGWSPQSE 63
                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                  6 GAGAFGLGFTPPHGGLLGWSPQAQ 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65 QAMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSP18SIFSRIGDPALNME 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
les 57; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 QAMQWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDDALKSE 64
                                                                                                                                                                                                                                                                                                                                                                22; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gill DOUCE
Mark PAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/10326908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15.4%;
96.6%;
                                                                                                                                                                                                                                                                                                                                                                           6.8%; Score 131; DB 6
91.7%; Pred. No. 0.064;
                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 298; DB 6; Le
Pred. No. 1.1e-12;
""amatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                        DB 6; Length 63;
                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 64;
                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
US-09-863-054-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 7
US-09-863-054-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-326-908-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 22, Applicati
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match 6.4%;
Best Local Similarity 88.0%;
Matches 22; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 20
                                                                                                                           TELEPHONE: (415) 576-021
TELEPAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 22:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR FILING DATE: 2000-10-06
PRIOR APPLICATION NUMBER: GB 0007789.1
PRIOR FILING DATE: 2000-03-30
PRIOR APPLICATION NUMBER: GB 9923902.2
PRIOR FILING DATE: 1999-10-08
NUMBER OF SEQ ID NOS: 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 68
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: synthetic peptide immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: MS Word
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40 GAGAFGLGFTPPHGGLLGWSPHDIG 64
            TOPOLOGY: linear MOLECULE TYPE: peptide SEQUENCE DESCRIPTION: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6 GAGAFGLGFTPPHGGLLGWSPQAQG 30
                                                                                                                                                                                                     NAME: Lockyer, Jean M.
REGISTRATION NUMBER: 44,879
REFERENCE/DOCKET NUMBER: 014
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA: APPLICATION UNMBER: US/09/863,054 FILING DATE: 21-May-2001 CLASSIFICATION: Unknown>
                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Chisari, Francis V. TITLE OF INVENTION: Peptides f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 07/935,898
FILING DATE: 26-AUG-1992
APPLICATION NUMBER: US 08/024,120
FILING DATE: 26-FEB-1993
APPLICATION NUMBER: US 08/396,283
FILING DATE: 27-FEB-1995
APPLICATION NUMBER: US 08/463,486
FILING DATE: 05-JUN-1995
                                                                      STRANDEDNESS: <Unknown>
                                                                                        TYPE: amino acid
                                                                                                           LENGTH: 20 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09863054
                                                                                                                                                                                       (415) 576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Peptides for Inducing Cytotoxic Lymphocyte Responses to Hepatiti
              SEQ ID NO: 22:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 124; DB (
Pred. No. 0.19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                        014740-000421US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            to Hepatitis B Virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
Sequence 50955, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative spl
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 50955
LENGTH: 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-724-676-50955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ફ
                                                                                                                                                                                                                                                                                RESULT 9
US-09-724-676-50956
; Sequence 50956, Application US/09724676
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ÚS-09-724-676-50955
                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
밁
                               Ś
                                                                                                                               US-09-724-676-50956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                       SOFTWARE: PatentIn version 3.2 SEQ ID NO 50956
                                                               Matches
                                                                                             Query Match
                                                                                                                                                                                                                       FILE REPERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                            ORGANISM: Homo sapiens
                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287 ASARFSWLSLLVPFVQWFVG 306
                                                                                                                                                                            ENGTH: 276
                                                                                                                                                                                                                                                                                                                                                                                                                 163 PGPTPPPPPPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP 201
                                                                                                                                                                                                                                                                                                                                                                                                                                               155 SWWTSLNFLGGTTVCLGQNS--QSPTSNHSPTSCPPTCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          مبر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32
   S,
                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ASARFSWLSLLVPFVQWFVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STSAKPFSPPSGPGRFPVP-SPGHRSGPPEPQR-----NRMPPPR------PDVGSKP 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GRGDGAGAFGLGFTPPHGGLL-------GWSPQAQGILETLPANPP--- 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DSIPPPVPSTPRPIQSSLHNRGSPP-----VPGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----pastnrosgroptplspelruthpoamomnstfehotlopprorglyfpaggss 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGGGGSFGGGGPPGLGGLFQAGMPKLRSTANRDNDSGGSRP------PLLFPGGR 82
 GGGGGGGFFGLGGLFQAGMPKLRSTANRDNDSGGSRP-----PLLPPGGR 82
                               GRGDGAGAFGLGFTPPHGGLL-------GWSPQAQGILETLPANPP--- 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.5%; Score 107; DB: 100.0%; Pred. No. 0.8; tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.4%; Score 105; D
26.0%; Pred. No. 12;
                                                               5.4%; Score 105; DE 26.0%; Pred. No. 12; tive 11; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aplicing
                                                                                                DB 5; Length 276;
                                                                                                                                                                                                                                                                                            aplicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                       191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                    73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                      78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRQPS 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                         10;
```

```
Sequence 50957, Application US/09724676

Sequence 50957, Application US/09724676

GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676

CURRENT FILING DATE: 2000-11-28

NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2

SEQ ID NO 50957
LENGTH: 276
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                           APPLICANT: Compugen LITD
TITLE OF INVENTION: Variants of alternative sp
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 50955
LENGTH: 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GRGANISM: Homo sapiens US-09-724-676-50957
                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                US-09-724-676A-50955; Sequence 50955, Application US/09724676A; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                     RESULT 11
Ś
                                                                                                 US-09-724-676A-50955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 57; Conserv
                                    Matches
                                                Query Match
Best Local S
                                                                                                                                   TYPE: PRT
                                                                                                                   ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        163 PGPTPPPPPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         129 DSIPPPVPSTPRPIQSSLHNRGSPP-----VPGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        129
                                                                                                                                                                                                                                                                                                                                                                                                    163 PGPTPPPPPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                  155 SWWTSLNFLGGTTVCLGQNS--QSPTSNHSPTSCPPTCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWWTSLNFLGGTTVCLGONS -- QSPTSNHSPTSCPPTCP 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGELGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STSAKPFSPPSGPGRFPVP-SPGHRSGPPEPQR-----NRMPPPR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----pastnrosgroptplspplrnthpoamownsttfhotlopprvrglyfpaggsss
   2 GRGDGAGAFGLGFTPPHGGLL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----pastnrosgroptelspelrnthpoamomnsttehotlodprvrglyfpaggsss 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GRGDGAGAFGLGFTPPHGGLL--------GWSPQAQGILETLPANPP--- 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STSAKPFSPPSGPGRFPVP-SPGHRSGPPEPQR-----NRMPPPR-----PDVGSKP 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGGGGSFGGGGPPGLGGLFQAGMPKLRSTANRDNDSGGSRP-----PLLPPGGR 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DSIPPPVPSTPRPIQSSLHNRGSPP-----VPGG----
                                    57;
                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                  5.4%;
ilarity 26.0%;
Conservative 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26.04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11; Mismatches
                                    11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 105;
Pred. No. 1
                                                      Score 105; I
Pred. No. 12;
                                        Mismatches
      ----GWSPQAQGILETLPANPP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 5; Length 276;
                                                                         밁
                                                                                                                                                                                                                                                                         splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73;
                                                                                                                                                                                                                                                                                                                                                                                                             201
                                                                                                                                                                                                                                                                                                                                                                                                                                              191
                                         73;
                                                                         Length 276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                        Indels 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -PDVGSKP 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -PRQPS 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRQPS 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                           Gaps
             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10;
                                               10;
```

10;

```
RESULT 13

US-09-724-676A-50957

Sequence 50957, Application US/09724676A

GENERAL INFORMATION:

APPLICANT: Compugen LTD

TITLE OF INVENTION: Variants of alternative spi
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A

CURRENT FILING DATE: 2000-11-28

NUMBER OF SEQ ID NOS: 97222

SEQ ID NO 50957

LENGTH: 276

TYPE: PRT

CYPE: PRT
                                                       ; ORGANISM: Homo sapiens
US-09-724-676A-50957
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 12
US-09-724-676A-50956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-724-676A-50956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 50956, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 50956
LENGTH: 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                           163 PGPTPPPPPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP
                                                                                                                                                                                                                                                                                                                                                                                       155 SWWTSLNFLGGTTVCLGQNS--QSPTSNHSPTSCPPTCP 191
                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                163 PGPTPPPPPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96 GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83 STSAKPFSPPSGPGRFPVP-SPGHRSGPPBPQR-----NRMPPPR-----PDVGSKP 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32 GGGGGGSFGGGGPPGLGGLFQAGMPKLRSTANRDNDSGGSRP---
                                                                                                                                                                                                                                                                                                                                                                                                                             DSIPPPVPSTPRPIQSSLHNRGSPP-----VPGG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STSAKPFSPPSGPGRFPVP-SPGHRSGPPEPQR-----NRMPPPR-----PDVGSKP 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----PASTNRQSGRQFTPLSPPLRNTHPQAMQMNSTTFHQTLQDPRVRGLYFPAGGSSS 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCGGGSFGGGGFFGLGGLFQAGMPKLRSTANRDNDSGGSRP-----PLLFFGGR 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GRGDGAGAFGLGFTPPHGGLL-----40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SWWTSLNFLGGTTVCLGQNS--QSPTSNHSPTSCPPTCP 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSIPPPVPSTPRPIQSSLHNRGSPP----VPGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----PASTNRQSGROPTPLSPPLRNTHPQAMQWNSTTFHQTLQDPRVRGLYFPAGGSSS 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.4%;
26.0%;
 26.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11;
Score 105; [
Pred. No. 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 105; D
Pred. No. 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
              DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 5; Length 276;
                                                                                                                                                                                                                    aplicing
                                                                                                                                                                                                                                                                                                                                                           201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73;
              Length 276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----PLLPPGGR 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   78;
                                                                                                                                                                                                                                                                                                                                                                                                                         -PRQPS 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10;
```

```
; APPLICANT: Compugen LTD; TITLE OF INVENTION: Variants of alternative splicing; FILE REFERENCE: 129181.4 Compugen
; CURRENT APPLICATION NUMBER: US/09/724,676; CURRENT FILING DATE: 2000-11-28
; NUMBER OF SEQ ID NOS: 97222; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 50954
; LENGTH: 328
; TYPE: PRT
; ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
US-09-724-676-50953
; Sequence 50953, Appli
; GENERAL INFORMATION:
RESULT 15
US-09-724-676-50954
                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: Homo sapiens
US-09-724-676-50953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                  Sequence 50954, Application US/09724676 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PILE REFERENCE: 129181.4 Compugen CURRENT APPLICATION NUMBER: US/09/724,676 CURRENT FILING DATE: 2000-11-28 NUMBER OF SEQ ID NOS: 97222 SOFTWARE: Patentin version 3.2 SEQ ID NO 50953 LENGTH: 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Compugen LTD TITLE OF INVENTION: Variants of alternative
                                                                                                                                                                                                                                                                                                   215 PGPTPPPFPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP
                                                                                                                                                                                                                                                                                                                                  155 SWWTSLINFLGGTTVCLGQNS--QSPTSNHSPTSCPPTCP
                                                                                                                                                                                                                                                                                                                                                                    181 DSIPPPVPSTPRPIQSSLHNRGSPP-----VPGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                     135 STSAKEFSEPSGEGREEVE-SEGHRSGEPEEOR-----NRMEPER---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41 ----PASTNRQSGRQPTPLSPPLRNTHPQAMQWNSTTFHQTLQDPRVRGLYFPAGGSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84 GGGGGGSFGGGGFFGLGGLFQAGMFKLRSTANRDNDSGGSRF-----FLLFFGGR 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 26.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                 GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GRGDGAGAFGLGFTPPHGGLL----------GWSPQAQGILETLPANPP---- 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PGPTPPPFPGNRGTALGGGSIROSPLSSSSPFSNRPPLP 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWWTSLNFLGGTTVCLGQNS--QSPTSNHSPTSCPPTCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DSIPPPVPSTPRPIQSSLHNRGSPP-----VPGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTV-NPVPTTVSPISSIFSRIGDPALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----pastnrosgroptptspruthrommomnsttfhottodprorglyfpaggss 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STSAKEFSPPSGPGRFPVP-SPGHRSGPPEPQR-----NRMPPPR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGGGSFGGGGPPGLGGLFQAGMPKLRSTANRDNDSGGSRP------PLLPPGGR 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GRGDGAGAFGLGFTPPHGGLL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        57; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/09724676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 105; I
Pred. No. 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     splicing
                                                                                                                                                                                                                                                                                                     253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GWSPQAQGILETLPANPP--- 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 328;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     ---PDVGSKP 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -PDVGSKP 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -- PRQPS 162
                                                                                                                                                                                                                                                                                                                                                                  -PRQPS 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
```

Sear Job	ઠ	Ś	망	Ş	F	8	망	8	Que Bes Mat
Search completed: February 3, 2003, 09:35:00 Job time : 30.4129 Becs	215 PGPTPPPPPPGNRGTALGGGSIRQSPLSSSSPFSNRPPLP 253	155 SWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSCPPTCP 191	181 DSIPPPVPSTPRPIQSSLHNRGSPPVPGGPKQPS 214	FFLLTRIL	135 STSAKPFSPPSGPGRFPVP-SPGHRSGPPEPQRNRMPPPRPDVGSKF 180	41PASTNRQSGRQPTPLSPPLRNTHPQAMQWNSTTFHQTLQDPRVRGLYFPAGGSSS 95	84 GGGGGGSFGGGGFPGLGGLFQAGMPKLRSTANRDNDSGGSRPPLLPPGGK 154	2 GRGDGAGAPGLGFTPPHGGLL	Query Match 5.4%; Score 105; DB 5; Length 328; Best Local Similarity 26.0%; Pred. No. 14; Matches 57; Conservative 11; Mismatches 73; Indels 78; Gaps 10;

```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein search, using sw model
                                         21:
3::
44::
65::
77::
110::
111:
113::
114::
115::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
116::
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4569144 seqs, 644733110 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-890-752A-1
1929
1 MGRGDGAGAFGLGFTPPHGG.....SILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             February 3, 2003, 09:23:57; Search time 247.857 Seconds (without alignments) 902.626 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pending_Patents_AA_Main:*
|: /cgn2_6/ptodata/1/paa/
/cgn2_6/ptodata/1/paa/ycgn2_comm.pep:*
/cgn2_6/ptodata/1/paa/US06_COMm.pep:*
/cgn2_6/ptodata/1/paa/US06_COMm.pep:*
/cgn2_6/ptodata/1/paa/US080_COMm.pep:*
/cgn2_6/ptodata/1/paa/US080_COMm.pep:*
/cgn2_6/ptodata/1/paa/US081_COMm.pep:*
/cgn2_6/ptodata/1/paa/US083_COMm.pep:*
/cgn2_6/ptodata/1/paa/US083_COMm.pep:*
/cgn2_6/ptodata/1/paa/US086_COMm.pep:*
/cgn2_6/ptodata/1/paa/US086_COMm.pep:*
/cgn2_6/ptodata/1/paa/US086_COMm.pep:*
/cgn2_6/ptodata/1/paa/US089_COMm.pep:*
/cgn2_6/ptodata/1/paa/US099_COMm.pep:*
/cgn2_6/ptodata/1/paa/US090_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
/cgn2_6/ptodata/1/paa/US000_COMm.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

4 ሪያ ፊ 4 ሪያ ሰን	Result No.
	Score
100.0 97.4 96.9 96.9 96.9	Query Match Length DB
347 389 389 389	Length
22222244	BG
2 US-09-990-752A-1 US-09-718-095-18 US-07-847-951A-216 US-07-847-951A-219 US-08-036-218-214 US-08-036-218-217	ID
Sequence 1, Appli Sequence 18, Appl Sequence 216, App Sequence 219, App Sequence 214, App Sequence 217, App	Description

Query Match 100.0%; Score 1929; DB 22; Best Local Similarity 100.0%; Pred. No. 4.3e-141; Matches 347; Conservative 0; Mismatches 0;

DB 22; Length 347; Indels

<u>.</u>.

Gaps

0

45	44	4	4.2	. # .	40	9	3	3.7		, w	ω A.	LU LU	32	31	. U	2.9	200	27) L I G) N	24	23) k	22	20	19	18	17	16	15	14	u u	12	: =	1		α	7
1460	1460	1460	1534	1534	1534	1534	1534	1539	1539	1587	1684	1700	1721	1721	1721	1743	1745	1783	1866	1866	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	σ,	8	1868	86	96
75.7	75.7	٠	79.5	٠	79.5	٠			9	82.3	7	88.1	9	ë	89.2	.~	.~	۳		96.7	,			96.8		.5		96.8	96.8		.0	٠.			٠.	•		96.8
															400									389			389	389	389	389	389	389	389	389	389	389	389	389
15	ü		21	21	21	16				21	21	21	26	21	21	21	21	21			26	გ გ	25	19			œ										æ	7
09-182-186A-	2-483-	A-3	9-724-969-1	-09-724-890-6	-09-724-648-	247-890	-09-021-769	08-036-	07-847-951/	-09-718-	-09-718-095-	09-718-095-	-10-209-264-	-09-719-528	-09-719-528-	US-09-718-095-5	-09-718-095-	US-09-718-095-19	US-09-821-877-2	-US02-09227-2	-10-267-748-10	-10-267-682-	-10-169-668-6	US-09-502-445-106	US-08-919-600-106	US-08-487-355A-106		US-08-487-266A-106	-08-487-266-	08-485-551-106	-08-485-	-08-485-546-106	-08-484-22	-08-484-2	5	-08-471-913-10	96-1	US-08-360-107-116
Sequence 35, Appl	Segmence 35	quence 35	equence 12	ן ת	2 1	- C	ם נת	3 !	214	e 20,	7,	יו קיי	ا د	ي س	ب ر	л (17,	1,	,		106	3 .	١,	ם כ	3 5	Segmence 106 App	Sequence 106 App	1 0	100	100,	100		100	equence 106,	equence 10	equence 106.	106	Sequence 116. Ann

ALIGNMENTS

```
Sequence 1, Application US/09890752A

Sequence 1, Application US/09890752A

APPLICANT: Hidt, Eberhard

APPLICANT: Hosenheider, Peter

TITLE OF INVENTION: Particles for Gene Therapy

FILE REFERENCE: 107070-120 (VOS-013)

CURRENT APPLICATION NUMBER: US/09/890,752A

CURRENT FILING DATE: 2001-08-03

PRIOR FILING DATE: 2001-08-03

PRIOR APPLICATION NUMBER: DE 199 04 800.2

PRIOR APPLICATION NUMBER: DE 199 04 800.2

INVESE OF SEQ ID NOS: 21

SOFTWARE: PATENTIN Version 3.1

SEQ ID NO 1

LENGTH: 347

TYPE: PRT

ORGANISM: Artificial Sequence

FEATURE:

COTHER INFORMATION: Fusion protein comprising a LHBs and heterologous binding

US-09-890-752A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-890-752A-1
```

밁 5 밁 ş 문 8 밁

```
GENERAL INFORMATION:

APPLICANT: VAN GEYT Caroline
APPLICANT: DE GENDT Sija
APPLICANT: DE GENDT Sija
APPLICANT: DE GENDT Sija
FILLE OF INVENTION: New HBV Sequences
FILLE OF INVENTION NUMBER: US/09/718,095
CURRENT APPLICATION NUMBER: EP9870252.6
PRIOR APPLICATION NUMBER: EP9870252.6
PRIOR APPLICATION NUMBER: US60/169,287
PRIOR APPLICATION NUMBER: US60/169,287
PRIOR PILING DATE: 1999-12-07
NUMBER OF SEQ ID NOS: 169
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 18
LENGTH: 389
TYPE: PAT
ORGANISM: Hepatitis B virus
US-09-718-095-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            १
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-718-095-18
US-09-718-095-18
Sequence 18, Application US/09718095
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                              S
                                                                                                                      8
                                                                                                                                                          밁
                                                                                                                                                                                      Ś
                                                                                                                                                                                                                     皮
                                                                                                                                                                                                                                                 ঠ
                               밁
                                                           S
                                                                                           밁
S
                                                                                                                                                                                                                                                                                                                                             Query Match 97.4%;
Best Local Similarity 98.5%;
Matches 337; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                       108
                                                                                                                                                            168
                                                                                                                                                                                         126
                                                                                                                            186
   306
                                                                                                                                                                                                                                                    66
                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                               Φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NMENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWMTSLNFLGGTTVCLGQNSQSPTSN 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NTHPQAMQMNSTTFHQTLQDPRVRGLYPPAGGSSSGTVNPVPTTVSPISSIFSRIGDPAL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VQWEVGLSPTVMLSVIWMMYWGPSLYSILSPELPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSPTSCPPTCPGYRWMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSPTSCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCFLIPGSSTTSTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PCRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCRTCTTPAQGTSMYPSCCCTKDSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPF
                                                                                                                                                                                                                                       AMQWNSTTFHQTLODPRVRGLYPPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                  GAGAPGLGPTPPHGGLLGWSPQAQGIIQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                  GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS 185
                                                                                                                                                                                                                     CPPTCPGYRMMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                          TSGPLGPLLVLQAGFFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                               TTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                  TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                Score 1879; DB 21; Length 389; Pred. No. 3.7e-137; 2; Mismatches 3; Indels 0
                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                  227
                                                                                                                                                                                                                                                                                                                                                        0
```

```
US-07-847-951A-216
; Sequence 216, Application US/07847951A
; GENERAL INFORMATION:
; APPLICANT: Paoletti, Enzo
; TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
; TITLE OF INVENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: 1
US-07-847-951A-216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (212) 840-3333
TELEPHONE: (212) 840-0712
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 216:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
                                                                                                                                                             S
                                                                                                                                                                                                  밁
                                                              맑
                                                                                              ঠ
                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESSE:
COURTE, MOTTIS & Safford
ADDRESSEE: C/O William S. Frommer
STREET: 530 Fifth Avenue
CITY: New York
STATE: NY
COUNTRY: USA
ZIP: 10036
ZIP: 10036
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/847,951A
FILING DATE: 19920326
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Prommer, William S.
REGISTRATION NUMBER: 454310-2400
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 96.9%;
Best Local Similarity 98.0%;
                                                                                                                                                                                                                                                                                                                                                                                                    Matches 335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       348
                                 306
                                                                  288
                                                                                                                                   228
                                                                                                                                                                186
                                                                                                                                                                                                  168
                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                                  108
                                                                                                                                                                                                                                                                                                                               6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                    66 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFFCLWVYI
TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                AMQMNSTTFHQTLODERVRGLYFPAGGSSSGAVNEVETTASELSSIFSRIGDEALNMENI
                 GLSPTVWLSVIWMMWYMGPSLYSILSPELPLLPIFFCLMVYI
                                                                                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            462
                                                                                                                                                                                                                                                                                                                                                                                                       3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1870; DB 3; Length 389; Pred. No. 1.8e-136;
                                                                                                                                                                                                                                                                                                                                                                                                           4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                           287
                                                                                                                                                                           245
                                                                                                                                                                                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
RESULT 5
US-08-036-218-214
; Sequence 214, Application US/08036218
; GENERAL INFORMATION:
                                                                                                                                                            S
                                                                                                                                                                                               밁
                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-07-847-951A-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-07-847-951A-219
Sequence 219, Application US/07847951A
GENERAL INFORMATION:
APPLICANT: Paoletti, Enzo
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/07/847,951A
FILING DATE: 19920326
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2400
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-333
INFORMATION FOR SEQ ID NO: 219:
SEQUIENCE CHARACTERISTICS:
INFORMATION FOR SEQ ID NO: 219:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 96.9%;
Best Local Similarity 98.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 10036

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: PACENTION DATA:
CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
                                                                                                                            348
                                                                                                                                                                                                                                                                    228
                                                                                                                                                                                                                                                                                                      186
                                                                                                                                                                                                                                                                                                                                         168
                                                                                                                                                                                                                                                                                                                                                                         126
                                                                                                                                                                                                                                                                                                                                                                                             108 AMQWNSTTFHQTLQDPRVRGLYFFAGGSSSGAVNFVPTTASPLSSIFSRIGDPALNWENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 389 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 530 Fit
CITY: New York
STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: c/o William S. Prommer
STREET: 530 Fifth Avenue
                                                                                                                                      GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                     GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                  MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPPVQWFV 347
                                                                                                                                                                                                                                                                                                                                               TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWATSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                   CPPTCPGYRWMCLRRPIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                             CPPTCPGYRWMCLRRFIIFLFILLCLIFLLYLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                          TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                335; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1870; DB 3;
Pred. No. 1.8e-136;
3; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
S
                                                                                  片
                                                                                                                 ঠ
                                                                                                                                                        밁
                                                                                                                                                                                         S
                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-036-218-214
                                                                                                                                                                                                                                                                                                                                                                Query Match 96.9
Best Local Similarity 98.0
Matches 335; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: de Taisne, Charles
APPLICANT: Limbach, Keith J.
APPLICANT: Limbach, Keith J.
APPLICANT: Johnson, Gerard P.
APPLICANT: Johnson, Gerard P.
APPLICANT: Cox, William I.
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE STRAIN
NUMBER OF SEQUENCES: 221
CORRESPONDENCE ADDRESS:
ADDRESSEE: William S. Frommer C/o
ADDRESSEE: William S. Frommer C/o
STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 07/713,967
FILLING DATE: 11-UN-1991
APPLICATION NUMBER: US 07/666,056
FILLING DATE: 07-MAR-1991
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 45.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                          246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
                                                                                                                       186
                                                                                                                                          168 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                       66 AMQMUSTTFHQTLQDFRVRGLYFFAGGSSSGTVNFVFTVSFISSIFSRIGDFALNMENI 125
                                                                                                                                                                                                                                                                                                    48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 389 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                              6 GAGAPGIGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: New York
MTTAQGTSMY PSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                          CPPTCPGYRWMCLRRF1IFLF1LLLCLIFLLVLLDYQGMLFVGPLIFGSSTTSTGPCRTC
                                                                   CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 287
                                                                                                                                                                 TSGFLGPLLVLQAGEFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                  AMOMNSTTEHOTLODERVRGLYEPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                         GAGAFGLGFTÞÞHGGLLGWSÞQAQGILQTLÞANÞÞÞASTNRQTGRQÞTÞLSÞÞLRNTHÞQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New York

!: United State of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tartaglia, James
Norton, Elizabeth K.
Riviere, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Paoletti,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Taylor,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Perkus, Marion E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    single
                                                                                                                                                                                                                                                                                                                                                                                   96.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Jill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/036,218
                                                                                                                                                                                                                                                                                                                                                                    Score 1870; DB 4; Length 389; Pred. No. 1.8e-136; 3; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               454310-2291
                                                                                                                                                                                                                                                                                                                                                                  4; Indels
                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                         245
                                                                                                                                              227
                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                             65
```

유

306 GLSPTVWLSVIWMMWYWGPSLYSILSPFLELLPIFFCLWVYI

347

GLSPTVWLSVIWMWYWGPSLYSILSPELPLLPIFFCLWVYI 389

```
RESULT 6
US-08-036-218-217
                                                                                                       밁
                                                                                                                                       S
                                   밁
                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 217, Ap
GENERAL INFORMA
 Ş
                                                                                                                                                                                                                                                US-08-036-218-217
                                                                                                                                                                        Best Local Similarity
Matches 335; Conserv
                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 217:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 mmino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
TITLE OF IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE STRAIN NUMBER OF SEQUENCES: 221
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/713,967
FILING DATE: 11-JUN-1991
APPLICATION NUMBER: US 07/666,056
FILING DATE: 07-MAR-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER REALABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2291
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: book
CITY: New York
STATE: New York
STATE: United State of America
                                     "108 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
CLASSIFICATION: 424
126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                       48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                        66
                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                              GAGAFGLGFTEPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                         AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Frommer, William S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: William S. Frommer c/o
E: Curtis, Morris & Safford, P.C.
530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Riviere, Michel
de Taisne, Charles
Limbach, Keith J.
Johnson, Gerard P.
Pincus, Steven B.
Cox, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/08036218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tartaglia, James
Norton, Elizabeth K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perkus, Marion E. Taylor, Jill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                                                                             (212) 840-0712
                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                     not relevant
                                                                                                                                                                                              96.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/036,218
                                                                                                                                                                                Score 1870; DB 4; Length 389; 
pred. No. 1.8e-136; 
3; Mismatches 4; Indels
                                                                                                                                                                                     0
                                                                                                                                                                                     Gaps
                                                                                                                                                                                       0
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-360-107-116
                                       片
                                                                         á
 S
                                                                                                                                                                                         US-08-360-107-116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 116, Applica GENERAL INFORMATION:
                                                                                                                  Matches 336;
                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                      TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 116:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Petteway, Stephen R.

APPLICANT: Langlois, Alphonse J.

TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR INHIBITION

TITLE OF INVENTION: OF MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HIV

TITLE OF INVENTION: TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             168
                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARB: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/360,107
FILLING DATE: 20-DEC-1994
CIASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, Leura A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 10036-2711

COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
MEDIUM TYPE: Ploppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                               NAME: CORUZZÍ, LBURB A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 78
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348 GLSPTVMLSVIMMMYMGPSLYSILSPELPLLPIFFCLMVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          306 GLGPTVWLSVIWMMYWGPSLYSILSPFLPLLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFYQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      228 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186 CPPTCPGYRWMCLRREIIFLFILLLCLIFLLVLLDYQGMLPYCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                           TOPOLOGY: unknown MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                            / Match 96.8%; Score 1868; DB 7; Length 389;
Local Similarity 98.2%; Pred. No. 2.6e-136;
nes 336; Conservative 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
66 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                       48
                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                  ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                             GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANDPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/08360107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bolognesi, Dani P.
Matthews, Thomas J.
Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Barney, Shawn O.
                                                                                                                                                                                                                                                                                                                                                                 (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lambert, Dennis M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137
                                                                                                                                                                                                                                                                                                                                                                                                                          7872-013
                                                                                                                          0
                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
                                                                                                                            0
```

```
; MOLECULE TYPE:
US-08-470-896-106
                                                                                                                                                                                  TELEFAX: (212) bu.

TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-470-896-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                              Query Match 96.8%;
Best Local Similarity 98.2%;
Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 106, Application US/08470896
GENERAL INFORMATION:
APPLICANT: Bolognesi, Dani P.
APPLICANT: Matthews, Thomas J.
APPLICANT: Wild, Carl T.
APPLICANT: Barney, Shawn O.
APPLICANT: Lambert, Dennis M.
                                                                                                                                                                                                                                                                                        NAME: COTUZZI, LAUTA A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-(
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PATENTIN Release #1.0, Version CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/470,896
FILING DATE: 06-TUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langloie, Alphones T.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR INHIBITION
TITLE OF INVENTION: OF MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HIV
TITLE OF INVENTION: TRANSMISSION
NUMBER OF SEQUENCES: 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 1155 AV
CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                          TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            348 GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306 GLSPTVWLSVIWMMWYWGPSLYSILSPFLPILPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCFLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MITAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSGFLGFLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSFTS 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pennie & Edmonds
                                                                                                                                          protein
                          Score 1868; DB 8; Lenyum ...
Pred. No. 2.6e-136;
Pred. No. 2.6e-136;
                                                                                                                                                                                                                                                                                                                                                      7872-020
                                                                              Length 389;
                                        0,
                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                        0
```

```
; MOLECULE TYPE: US-08-471-913-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 9
US-08-471-913-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 106, Application:
                                                                                                                                                                                                                                                                                                  ZIP: 10036-2711

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/08/471,913
FILING DATE: 07-JUN-1995
                                                                                                                  TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
                                                                                                                                                                      PILING DATE: 07-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: CORLEZI, Laura A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKST NUMBER: 7872
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Barney, Shawn O.
APPLICANT: Lambert, Dennis M.
APPLICANT: Leadert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF MEMBRANE
TITLE OF INVENTION: TRANSMISSION
TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306 GLSPTVWLSVIWMWWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246 TIPAQGISMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARPSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108
                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET: 1155 A
CITY: New York
STATE: New Yor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
                                                                                  ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CPPTCPGYRMMCLRREIIFLEILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMQWNSTTFHQTLQDPRVRGLYPPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : 389 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/08471913
                                 unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bolognesi, Dani P.
Matthews, Thomas J.
Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  York
              protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        209
                                                                                                                                                                                                            7872-030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  107
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
US-08-475-668-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 98.2%;
Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 106, Application US/08475668 GENERAL INFORMATION:
                                                                                                                                             ZIP: 10036-2711

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC Compatible

COMPUTER: IBM PC COMPATIBLE

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PSC-DOS/MS-DOS

SOFTWARE: PSC-DOS/MS-DOS

SOFTWARE: PSC-DOS/MS-DOS

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/06/475,668

FILING DATE: 07-JUN-1995

FILING DATE: 07-JUN-1995

CLASSIFICATION: 530

ATTORNEY/AGENT INFORMATION:

NAME: COTUZZI, LAUTE A.

REGISTRATION NUMBER: 30.742

REGISTRATION NUMBER: 30.742

REFERENCE/DOCKET NUMBER: 7807-026

TELECHONE: (212) 790-9090

TELECHONE: (212) 790-9090
                                                                                           TELEPAX: (212) 869-9741/886
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Barney, Shawn O.
APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF
TITLE OF INVENTION: MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING INFLUENZA
TITLE OF INVENTION: VIRUS TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108
                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARPSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                   STRANDEDNESS:
ropoLogy: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CPPTCPGYRWNCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TSGFLGFLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMOMNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTPAQGTSMYBSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New York
                                     amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: Pennie & Edmonds
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bolognesi, Dani P.
Matthews, Thomas J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Barney, Shawn O.
Lambert, Dennis M.
                                                                                                                                     (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 2.6e-136;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; MOLECULE TYPE: US-08-475-668-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-484-223-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 106, Application US/08484223
GENERAL INFORMATION:
APPLICANT: Bolognesi, Dani P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 98.7
Matches 336; Conservative
                                                                                                                                                                                                  COUNTRY: USA
ZIP: 1036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PATENT: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Ve:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/484,223
FILING DATE: 07-JUN-1995
                                                    CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION:
ANAME: COTUZZÍ, LAURA À.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-
TELECHONEUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPAX: (212) 869-9741/8864
TELEX: 66141 PENNIE INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen M.
APPLICANT: Langlois, Alphonse J.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF
TITLE OF INVENTION: MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HIV
TITLE OF INVENTION: TRANSMISSION
NUMBER OF SEQUENCES: 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108 AMQWNSTTFHQTLQDPRVRGLXFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348 GLSPTVMLSVIWMMYMGPSLYSILSPELELLPIFFCLMVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306 GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    168 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              288 MITAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6 GAGAFGLGFTPPHGGLLGWSDOAOGILETLPANPPPASTURQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMQWNSTTFHQTLQDFRVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                         New York
                                                                                                                                                                                                                                                                                                                                                                                                                            E: Pennie & Edmonds
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matthews, Thomas J. Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barney, Shawn O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96.8%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1868; DB 8;
Pred. No. 2.6e-136;
                                                                                                                  7872-029
                                                                                                                                                                                                                                                                Version
                                                                                                                                                                                                                                                                    #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
```

```
US-08-484-223A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                Sequence 106, Application US/08484223A

GENERAL INFORMATION:
APPLICANT: Bolognesi, Dani P.
APPLICANT: Matthews, Thomas J.
APPLICANT: Mid, Carl T.
APPLICANT: Mid, Carl T.
APPLICANT: Lambert, Dennis M.
APPLICANT: Lambert, Dennis M.
APPLICANT: Langlois, Alphonse J.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF
TITLE OF INVENTION: TRANSMISSION-ASSOCIATED EVENTS, INCLUDING HIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-484-223-106
        COMPUTER READALE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN DATA:
APPLICATION NUMBER: US/08/484,223A
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZÍ, LAURA A.
REGISTRATION NUMBER: 30,742
REFERRNCE/DOCKET NUMBER: 7872-029
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 96.8%;
Best Local Similarity 98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 336;
                                                                                                                                                                                                                     CLL.
STATE: NGA
COUNTRY: USA
TO: 10036-2711
TO: TOADABLE F
                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                              STREET: 1155 Avenue of the Americas CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
TYPE: a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS:
TOPOLOGY: un
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANDPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVMLSVIWMMYWGBSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFYQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRWMCLRRFIIFLFILLCLIFLLYLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MTTAQGTSMYPSCCCTKPSDCNCTCIPIPSSWAFGKPLWEWASARFSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid
                                                                                                                                                     PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389 amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                             Pennie & Edmonds
(212)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1868; DB 8; Length 389; Pred. No. 2.6e-136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
US-08-485-546-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70POLOGY: unknown
; MOLECULE TYPE: protein
US-08-484-223A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 106, Application:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (212) 869-9741/8

TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 10
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: PatentIn Release #1.0, Ve;
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/08/485,546
FILING DATE: 07-UN-1995
CILASSIFICATION: 1970
ATTORNEY/AGENT INFORMATION:
NAME: Coruzzi, Laura A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 336; Conserv
                                                                                                                                                                                                                                                                                           APPLICANT: Wild, Carl T.

APPLICANT: Barney, Shawn O.

APPLICANT: Lambert, Dennis M.

APPLICANT: Petteway, Stephen R.

APPLICANT: Langlois, Alphonse J.

TITLE OF INVENTION: METHODS FOR INHIBITION OF MEMBRANE

TITLE OF INVENTION: TRANSMISSION

TRANSMISSION
                                                                                                                                             ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     348 GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306 GLSPTVWLSVIWWWWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                            STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126 TSGFLGPLLYLQAGFFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGONSOSPTSNHSPTS
                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPPTCPGYRWWCLRRFIIFLFILLLCLIFLLVILLDYQCMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AMOMNSTTFHOTLODERVRGLYFFAGGSSSGTVNFVFTTVSBISSIFSRIGDFALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                              1155 Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/08485546
                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                        Bolognesi, Dani P. Matthews, Thomas J. Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (212) 869-9741/8864
                                                                                                                                                                                                                                                             Pennie &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96.8%;
                                                                                                                                                                                                                                          of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1868; DB 8;
Pred. No. 2.6e-136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                             Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE: protein US-08-485-546-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-485-546A-106
; Sequence 106, Application US/08485546A
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 96.8%;
Best Local Similarity 98.2%;
Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
SOURCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 787.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                    APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: METHODS FOR INHIBITION OF MEMBRANE
TITLE OF INVENTION: FUSION-ASSOCIATED EVENTS, INCLUDING EPSTEIN-BARR VIRUS
TITLE OF INVENTION: TRANSMISSION
COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/485,546A
                                                                                                                                                                                                                NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & 1
                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65 GAGAPGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQFTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 389 amino acids
                                                                                                                                                             STREET: 1155 A.
CITY: New York
STATE: New Yor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLSPTVMLSVIMMMYMGDSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMQWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPPVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAQGTSMYDSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 287
                                                                                                                                                               New York
                                                                                                                                                                                                 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                            Bolognesi, Dani P.
Matthews, Thomas J.
Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                           Barney, Shawn O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    unknown
                                                                                                                                                                                                                                                                                                                                                          Lambert, Dennis M.
                                                                                                                                                                                                                   Pennie & Edmonds LLP
                                                                                                                                                                                                                                                       TRANSMISSION 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1868; DB 8;
pred. No. 2.6e-136;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7872-028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
; MOLECULE TYPE: protein US-08-485-546A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
US-08-485-551-106
                                                                                                                                                               Sequence 106, Application US/0848551

GENERAL INFORMATION:

APPLICANT: Matchews, Thomas J.

APPLICANT: Matchews, Thomas J.

APPLICANT: Mild, Carl T.

APPLICANT: Lambert, Dennis M.

APPLICANT: Lambert, Dennis M.

APPLICANT: Lambert, Dennis M.

APPLICANT: Lamblois, Alphonse J.

APPLICANT: Langlois, Alphonse J.

APPLICANT: Petteway, Stephen R.

APPLICANT: PETTON: METHODS FOR INHIBITION OF MEMBRANE

TITLE OF INVENTION: TRANSMISSION

NUMBER OF SEQUENCES: 209

NUMBER OF SEQUENCES: 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, Laura A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPHONE: (212) 790-9090
COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     348 GLSPTVMLSVIMMMWYMGPSLYSILSBPLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306 GLSPTVMLSVIMMMWYMGPSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126 TSGFLGPLLVLQAGEFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108 AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288 MITAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (212)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 AMQWNSTTFHQTLQDFRVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDFALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65 GAGAFGLGETPPHGGLLGWSDOAQGILETLPANPPPASTURQSGRQPTPLSPPLRNTHPQ
                                                                                   STREET: 1155 AV
CITY: New York
STATE: New York
                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ĠĀĠĀPĠĹĠŦŦ₽PĦĠĠĹĹĠ₩ŚPĄĀĢĠĹĹQŤĹPĀŇPPPĀŚTŇŔQŚĠŔQPŤPĹŚPPĹĸNTHPQ
                                                                                                                     E: Pennie & Edmonds
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96.8%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1868; DB 8;
pred. No. 2.6e-136;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7872-028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        287
```

```
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/485,551
FILING DATE: 07-JUN-1995
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, LAUYA A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-023
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPHONE: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: unknown
MOLECULE TYPE: protein
US-08-485-551-106
Search completed: February 3, 2003, 09:34:07 Job time : 250.857 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 96.8%; Score 1868; DB 8; Length 389; Best Local Similarity 98.2%; Pred. No. 2.6e-136; Matches 336; Conservative 2; Mismatches 4; Indels 0;
                                                                             306 GLSPTVMLSVIWMMWYMGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                               126 TSGELGELLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS 185
                                                                                                                                                                    288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIÞSSWAFGKFLWEWASARFSWLSLLVÞFVQWFV 347
                                                                                                                                                                                           246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFYQWFV 305
                                                                                                                                                                                                                                                        186 CPPTCPGYRWMCLRREIIFLEILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                      66 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6 GAGAPGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
```

S

Ś 밁 S 먉 ঠ 문 S 문 S

문

<i>*</i>	•		
·			

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           on:
                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
            1231
997
834.5
652
649
613
604
579
571
565
                                                                                                                                                                                                                                                                                                           Score
                                                                                                                                                                         1866
1721
1534
1437
1259
1259
1259
1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                               Published Applications AA:*

1: /cgn2_6/ptodata/2/pubpaa/USO8 NEW PUB.pep:*

2: /cgn2_6/ptodata/2/pubpaa/PCT NEW PUB.pep:*

3: /cgn2_6/ptodata/2/pubpaa/USO6 NEW PUB.pep:*

4: /cgn2_6/ptodata/2/pubpaa/USO6_PUBCOMB.pep:*

4: /cgn2_6/ptodata/2/pubpaa/USO7_NEW PUB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*

7: /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*

9: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

10: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

11: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

12: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

13: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

14: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

15: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

16: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*

17: /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein search, using sw model
                                                                                                                                                                                                                                                                                                           Match
          122226 seqs, 20178551 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MGRGDGAGAFGLGFTPPHGG.....SILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                February 3, 2003, 09:25:53; Search time 12.6951 Seconds (without alignments) 551.547 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-890-752A-1
1929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                          Length
         389
281
281
226
226
226
226
226
2397
351
288
248
1744
1774
                                                                                                                                                                                                                                                                                                           B
                                                                                                                             10
10
9
         10
   9 US-09-821-877-2

9 US-09-247-890-12

9 US-09-247-890-10

9 US-09-247-890-10

10 US-09-929-955-10

10 US-09-821-877-8

10 US-09-821-862-14

10 US-09-812-862-4

10 US-09-812-862-4

10 US-09-812-862-4

10 US-09-812-862-2

10 US-09-812-862-2

10 US-09-818-86-54

10 US-09-818-066-54

10 US-09-818-066-54

10 US-09-818-066-48
                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
Sequence 2, Appli
Sequence 3, Appli
Sequence 10, Appl
Sequence 10, Appl
Sequence 10, Appl
Sequence 10, Appli
Sequence 14, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 16, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 54, Appli
Sequence 54, Appli
Sequence 56, Appli
Sequence 56, Appli
Sequence 57, Appli
Sequence 56, Appli
Sequence 56, Appli
Sequence 56, Appli
Sequence 56, Appli
Sequence 56, Appli
Sequence 56, Appli
Sequence 46, Appli
Sequence 46, Appli
Sequence 46, Appli
                                                                                                                                                                                                                                                                                                   Description
                             밁
                                                      Ś
                                                                                       묽
                                                                                                                S
                                                                                                                                                밁
                                                                                                                                                                         ş
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 1
US-09-821-877-2
                                                                                                                                                108
                                                                                                                  126
                                                                                                                                                                            99
                                                                                                                                                                                                        48
```

4	4	43	42	4	40	9	ω 8	37	36	35	34	u	32	μ	. U	2	200	27	26	25	24	23	22	21	20
208.5	209	228	353	472	480	488	496	522	525	525	528	528	529	533	538	539	539	541	544	545	550	551	552	552	554
10.8	10.8					25.3	25.7	27.1	27.2	27.2	27.4	27.4	27.4	27.6	27.9	27.9	27.9	28.0	28.2	28.3	28.5	28.6	28.6	28.6	28.7
420	4. 80	55	19	174	174	174	174	174	174	174	174	174	174	174	174	174	174	170	174	174	174	174	174	174	174
10	10						10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
US-09-812-862-10	-09-818-066-67	-09-879	09-821-877-5	-09-818-066-	9-818-066-	-09-818-	-09-818-066-	-09-818-066-3	-09-818-06	18-06	90	-818-06	-818-06	å	90	-818-06	-818-066-3	-818-066-4	-09-818-066-	-09-818-066-4	-09-818-066-	-09-818-066-4	US-09-818-066-6	US-09-818-066-4	US-09-818-066-53
10,	Sequence 67. Appl	١,	Λ,	ינט	יות פורכ	Sequence 36. Appl	. د	, o	۸,	٠,	л	л		ומו	י ת	4	ים יעו	D (D (D (D (D (D 1	D 1	

ALIGNMENTS

```
Sequence 2, Application US/09821877

Patent No. US20020177124A1

GENERAL INFORMATION:
APPLICANT: Abbott Laboratories
APPLICANT: Abbott Laboratories
APPLICANT: Coleman, Paul F.
APPLICANT: Mushahwar, 1sa K.
ITITLE OF INVENTION: Hepatitis B Virus Surface Antigen Mut.
ITITLE OF INVENTION: And Methods Of Detection Thereof
FILE REFERENCE: 6794.US.01
CURRENT APPLICATION NUMBER: US/09/821,877
CURRENT FILING DATE: 2000-03-03
NUMBER OF SEQ ID NOS: 8
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 2
LENGTH: 389
TYPE: PRT
ORGANISM: Hepatitis B Virus
US-09-821-877-2
             S
                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                             Matches 336;
246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                        6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                           TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                 CPPTCPGYRWMCLRRFIIFLFILLLCLIFILLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                        CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRAC
                                                                                                                                                                                                              AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPARNMENI 167
                                                                                                                                                                                                                                              AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVGPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             96.7%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                    Score 1866; DB 9;
Pred. No. 1.9e-132;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                       4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                               Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mutant
                                                                                                                                                                                                                                                                                                                                                                                       ..
                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                            287
```

```
몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 2
US-10-209-264-3
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                              ; SEQUENCE DESCRIPTION: SEQ ID NO: 3: US-10-209-264-3
                                                                                                                                                                   á
                                                                                                                                                                                                                                        S
                         S
                                                                 몽
                                                                                                á
                                                                                                                                  밁
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3, Application US/10209264 Publication No. US20030003111A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 308; Conserv
                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (212) 708-18(
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 400 amino acids
TYPE: amino acid
STRANDENNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         306
                              186
                                                                                                                                        119
                                                                                                   126
                                                                                                                                                                         9
                                                                                                                                                                                                           89
                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTMARBE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/209,264
PILING DATE: 31-Jul-2002
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEB: Ladas & Parry
STREET: 26 West 61 Street
CITY: New York
STRIE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: PCT/SG98/00046
FILING DATE: 19-JAN-1998
ATTORNEY/AGENT INFORMATION:
NAME: MASS, Clifford J.
REGISTRATION NUMBER: 30,086
REPERENCE/DOCKET NUMBER: U-013109-7
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Oon, Chong Jin
Lim, Gek Keow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: A MUTANT HUMAN HEPATITIS B VIRAL STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLSPTVWLSVIWMMLYWGPSLYTILSPBLPLLPIBFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                    ATQWNSTTFHQALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRTGDPAPNMENT 178
                                                                                                                                                          AMOMNSTTEHOTLODDRYRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                         GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                         TSGELGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                     TSGPLGPLLVLQAGPFSLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear
                                                                                                                                                                                                                                                                           89.2%; Score 1721; DB 9; ilarity 90.1%; Pred. No. 1.3e-121; Conservative 10; Mismatches 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhao, xi
Chen, Wei Ning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          708-1800
                                                                                                                                                                                                                                                                                                               Length 400;
                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AND
                                                                                                                                                                                                                                                                                  Gaps
                                                                          238
                                                                                                                                                                                                                                                                                    0
```

```
APPLICANT: Bass, Steven H.
APPLICANT: Bass, Steven H.
APPLICANT: Whalen, Robert Gerald
APPLICANT: Whalen, Robert Gerald
APPLICANT: Howard, Russell
APPLICANT: Howard, Russell
APPLICANT: Howard, Russell
APPLICANT: Maxygen, Inc.
APPLICANT: Maxygen, Inc.
CURRENT: Maxygen, Inc.
CURRENT MAXYGEN Antigen Library Immunization
FILE REFERENCE: 018097-028710US
CURRENT FILING DATE: 1999-02-10
CURRENT FILING DATE: 1999-02-11
EARLIER APPLICATION NUMBER: US 60/074,294
EARLIER APPLICATION NUMBER: US 60/105,509
EARLIER APPLICATION NUMBER: US 60/105,509
EARLIER PILING DATE: 1998-10-23
NUMBER OF SEQ ID NO 12
SEQ ID NO 12
LENGTH: 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
US-09-247-890-12
                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: PRT; ORGANISM: Hepatitis
US-09-247-890-12
                                                                                                  Ś
                                                                                                                                                                     S
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                     $
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                        Ś
                                Ś
                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 12, Application US/09247890 Publication No. US20020198162A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 276; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
187
                                                                                                                                                                                                                                         127
                                                                                                                                        121
                                                                     181
                                                                                                      247
                                                                                                                                                                                                                                                                                                             67
                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                             μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLSPTVWLSVIWMWWWGRSLYNILSPFLPLLPIFFCLWVYI 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTPAQGNSTFPSCCCTKPSDGNCTCIPIPSSWAFARFLWEWASVRPSWLSLLVPFVQWFV 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLMEWASARFSWLSLLVPFVQWFV
                                                                                      TPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVG
                                                                                                                                                          PPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTCT 246
                                                                                                                                                                                                       SGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSC 186
                                                                                                                                                                                                                                                                         MOWNSTTFHOTLODERVRGLYFFAGGSSSGTVNFVLTTASPLSSIFSRIGDPALNMENIT 60
                                                                                                                                                                                                                                                                                             MOMNSTTFHOTLODPRYRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENIT 126
                                                                    TTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPFVQWFVG
                                                                                                                                      PPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTCM 180
                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                               79.5%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                     virus
                                                                                                                                                                                                                                                                                                                                               Score 1534; DB 9;
pred. No. 8.5e-108;
1; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                   Length 281;
                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                             240
                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                        0
```

Sequence 10, Application US/09247890
Publication No. US20020198162A1
GENERAL INFORMATION:
APPLICANT: Punnonen, Juha
APPLICANT: Bass, Steven H.
APPLICANT: Whalen, Robert Gerald
APPLICANT: Howard, Russell
APPLICANT: Stemmer, Willem P.C.
APPLICANT: Stemmer, Willem P.C.
APPLICANT: Maxygen, Inc.

US-09-247-890-10

```
S
                                                                                                                                           ; OTHER INFORMATION: Hepatitis B virus S antigen (HBsAg) sequence
US-10-104-966-10
                                                                                                                                                                                                                                                                                                  APPLICANT: Catharina Hultgren
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN AND
TITLE OF INVENTION: WASTIONS OF USE THEREOF
FILE REFERENCE: TRIPEP.23AUSC1
CURRENT APPLICATION NUMBER: US/10/104,966
CCURRENT FILING DATE: 2002-03-22
PRIOR APPLICATION NUMBER: 09/705,547
PRIOR APPLICATION NUMBER: 09/705,547
PRIOR PILING DATE: 2000-11-03
PRIOR PILING DATE: 2000-11-03
PRIOR PILING DATE: 2000-08-29
INTERNET DE ESC. TENES. 2000-08-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/247,890
CURRENT FILING DATE: 1999-02-10
EARLIER APPLICATION NUMBER: US 60/074,294
EARLIER FILING DATE: 1998-02-11
EARLIER APPLICATION NUMBER: US 60/105,509
EARLIER FILING DATE: 1998-10-23
NUMBER OF SEQ ID NOS: 25
SOPTWARE: Patentin Ver. 2.0
SEQ ID NO 10
LENGTH: 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-104-966-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                   Query Match
Best Local Similarity 99.1
Matches 224; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: PRT
; ORGANISM: Hepatitis B virus
US-09-247-890-10
                                                                                                                                                                                                                                 NUMBER OF SEQ ID NOS: 15
SOFTWARE: PastSEQ for Windows Version 4.0
SEQ ID NO 10
LENGTH: 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 91.9 Matches 257; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Matti Sallberg
APPLICANT: Catharina Hul
                                                                                                                                                                                 TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OP INVENTION: Antigen Library Immunization FILE REFERENCE: 018097-028710US
122 MENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNH 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67 MQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFGRIGDPALNMENIT 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MQWNSTTFHQALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRTGDPAPNMENTT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LSPTVWLSVIWAMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVG 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPAQGTSMEPSSCCTKPSDGNCTCIPIPSSWAFARFLWEWASVRPSWLSLLVPFVQWFVG 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PPICPGYRWYCLRRFIIFLFILLLCLIFLLVILDYQGYLSVCPLLPRTSTTSTGPCKTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGPLGPLLVLQAGFFLLTRILTIPQSLHSWWTSLNFLGAAPTCLGQNSQSPTSNHSPTSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSC 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPTCPGYRWMCLRREIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGBCRTCT 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US20020155124A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/10104966
                                                                                65.3%;
99.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74.5%;
91.5%;
                                                       Score 1259; DB 9;
Pred. No. 2.4e-87;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1437; DB 9;
Pred. No. 1.5e-100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18;
                                                                                             Length 226;
                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                 US-09-821-877-8
                                                                                                                                                                                                                                                                                         RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                     Sequence 8, Application US/09821877
Patent No. US20020177124A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-929-955-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-929-955-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             딹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 49
SOFTWARE: FASTSEQ for Windows Version
SEQ ID NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRANSPORTED NO 10
LENGTH TO THE TRAN
APPLICANT: Abbott Laboratories APPLICANT: Coleman, Paul F. APPLICANT: Mushahwar, Isa K. TITLE OF INVENTION: Hepatitis:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 10, Application UPAtent No. US20020136740A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/09/929,955
CURRENT FILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 09/705,547
PRIOR FILING DATE: 2000-11-03
PRIOR APPLICATION NUMBER: 60/229,175
PRIOR FILING DATE: 2000-08-29
PRIOR FILING DATE: 2000-08-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 60/225,767
PRIOR FILING DATE: 2000-08-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Matti Sallberg
APPLICANT: Matti Sallberg
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN
TITLE OF INVENTION: METHODS OF USE THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: TRIPEP.23AUS2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: Hepatitis B virus S antigen (HBsAg) sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 226
                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                            302 QWEVGLSPTVWLSVIWMWYWGPSLYSILSPELPLLPIFECLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122 MENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNH 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302 QWEVGLSPTVWLSVIWWWWYWGPSLYSILSPELPLLPIEFECLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNH
                                                                                                                                                                                                                                                                                                                                                                    QWFVGLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPTSCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLYLLDYQGMLPVCPLIPGSSTTSTGP 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFV 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRTCMTTAQGTSMYPSCCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QWFVGLSPTVWLSVIWMWYWGPSLYSILSPFLFLLFIFFCLWVYI 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRTCMTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARPSWLSLLVPFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPTSCPPTCPGYRWMCLRRPIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPTSCPPTCPGYRWMCLRRF11FLF1LLLCL1FLLVLLDYQGMLFVCPL1PGSSTTSTGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65.3%; Score 1259; DB 10; 99.1%; Pred. No. 2.4e-87; tive 0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/09929955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

W

Virus Surface Antigen Mutant

```
CURRENT APPLICATION NUMBER: US/09/821,877
CURRENT FILING DATE: 2000-03-03
NUMBER OF SEQ ID NOS: 8
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 8
LENGTH: 229
TYPE: PRT
ORGANISM: Hepatitis B Virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAMES/KEY: VARIANT
LOCATION: (126)...(126)
OTHER INFORMATION: XAA = A ON
NAMES/KEY: VARIANT
LOCATION: (202)...(202)
OTHER INFORMATION: XAA = L ON
NAMES/KEY: VARIANT
LOCATION: (210)...(210)
OTHER INFORMATION: XAA = T ON
OTHER INFORMATION: XAA = T ON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 14, Application US/09812862
Patent No. US20020035081A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: And Methods Of Detection Thereof FILE REFERENCE: 6794.US.Ol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119 ALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPT 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
les 225; Conserv
                                                            COUNTRY: USA
ZIF: 02110-2804
ZIF: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
COMPUTER: Patentin PC-DOS/MS-DOS
SOPTMARE: Patentin Release #1.0, Ver
SOPTMARE: Patentin Release #1.0, Ver
APPLICATION NUMBER: US/09/812,862
FILING DATE: 20-MAR-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
DATA: 100/667 073
                                                                                                                                                                                                                                                                                                                                                                          Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
NUMBER OF SEQUENCES: 14
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ARNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFVQWFVGLSPTVWLSVIWMMWYWGBSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SNHSPTSCPPTCPGYRWMCLRRFIIPLPILLLCLIPLLVLLDYQGMLPVCPLIPGSSTTS 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Wands, Jack R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGPCRXCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGPCRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLV 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SNHSPTSCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTS 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PEVQWEVGLSPTVWLSVIWMXYWGPSLYXILSPELPLLPIFECLWVYI 229
                                                                                                                                                                                                                                                                                                                                  CITY: Boston
STATE: MA
APPLICATION NUMBER: 08/667,073 FILING DATE: <Unknown> APPLICATION NUMBER: 08/492,489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1259; DB 9;
Pred. No. 2.5e-87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                at position 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   at position 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    at position 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                     Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear

HOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 14:
US-09-812-862-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-812-862-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 223; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 6, Application US/09812862
Patent No. US20020035081A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEX: 200154
INFORMATION FOR SEQ ID NO: 14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122 MENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNH 181
                                                                            COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION NUMBER: US/09/812,862

FILING DATE: 20-Mar-2001

CLASSIFICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: 08/667,073

FILING DATE: <Unknown>
PRIOR APPLICATION NUMBER: 08/667,073

APPLICATION NUMBER: 08/667,073

FILING DATE: <Unknown>
APPLICATION NUMBER: 08/67,073

FILING DATE: <Unknown>
APPLICATION STANDAMON'N

APPLICATION NUMBER: 08/492,489

FILING DATE: 20-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 OWFYGLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302 QWFVGLSDTVMLSVIWMMWYWGDSLYSILSDFLFLLDIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242 CRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWBWASARFSWLSLLVPFV 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 20-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: Clark, Paul T.
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 0078
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 SPTSCPPTCPGYRWMCLRRPITFLFILLLCLIFLLVLLDYQCMLPVCPLIPGSSTTSTGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MENITSGELGPLLVLQAGFFLLTRILTIPQSLDSWMTSLNFLGGTTVCLGQNSQSPTSNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ĊŔŦĊMŦŦĀQĠŦŚŃŶŖŚĊĊĊŦĸŖŚŊĠŃĊŦĊĬŖĬŖŚŚWĀŖĠĸŖĹŴĔŴĀŚĀŖŖŚWĹŚĽĹŶŖŶŶ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPTSCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGP 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Wands, Jack R
                                     ATTORNEY/AGENT INFORMATION:
NAME: Clark, Paul T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH: 226 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: Boston
STATE: MA
                  REGISTRATION NUMBER: 30,162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scaglioni, Pier Paolo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1252; DB 10;
pred. No. 8.1e-87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     00786/282001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٥.
```

ঠ 밁 S

179

۱.,

5

Query Match

Gaps

0

60

120

밁 Ś 밁

121 239

뭐 8

181

299

US-09-812-862-14

```
RESULT 10
US-09-812-862-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          皮
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE: protein; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-812-862-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 4, Application US/09812862 Patent No. US20020035081A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 237; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 63.8%;
Best Local Similarity 69.7%;
  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PACENTIN Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/09/812,862
FILING DATE: 20-Mar-2001
CLASSIFICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: 08/667,073
FILING DATE: 40NKNOWN>
PRIOR APPLICATION NUMBER: 08/667,073
FILING DATE: 40NKNOWN>
APPLICATION NUMBER: 08/667,073
FILING DATE: 40NKNOWN>
APPLICATION NUMBER: 08/667,073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEX: 200154
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128 GPLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSBTSCP 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 SPGVWIRTPP-----AYRPPNAPILSTL----PETTVVRRRGRSPRRRTPSPRRRRSQS- 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9 AFGIGF-TPPHGGLIGMSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQAM 67
                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                        Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Wands, Jack R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPTVMLSVIMMMYWGPSLYSILSPFLPLLPIFFCLMVYI 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPTVWLSVIWMMWWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVGL 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 00786/282001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTCPGYRMMCLRRFIIFLFILLCLIFFLLVLLDYQGMLFVCFLIFGSSTT8TGFCRTCTT 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTCPGYRWMCLRRP11FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTGPCRTCMT 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SRLGPLLVLQAGPFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSCP 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENITS 127
                                                                                                                                                                                                                                                                                           CITY: Boston
STATE: MA
APPLICATION NUMBER: 08/492,489
                                                                                                                                                                                                                                                                           COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 397 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1231; DB 10;
Pred. No. 5.6e-85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            397,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٠.
```

```
CURRENT APPLICATION NUMBER: US/09/247,890
CURRENT FILING DATE: 1999-02-10
EARLIER APPLICATION NUMBER: US 60/074,294
EARLIER FILING DATE: 1998-02-11
EARLIER APPLICATION NUMBER: US 60/105,509
EARLIER APPLICATION NUMBER: US 60/105,509
EARLIER FILING DATE: 1998-10-23
NUMBER OF SEQ ID NOS: 25
SOPTWARE: PATENTIN Ver. 2.0
SEQ ID NO 16
LENGTH: 282
                                              S
                                                                                         밁
                밁
                                                                                                                        S
                                                                                                                                                                                                                                               US-09-247-890-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-247-890-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-812-862-4
                                                                                                                                                         Query Match 43.3%; Score 834.5; DB 9
Best Local Similarity 56.8%; Pred. No. 1.7e-55;
Matches 159; Conservative 29; Mismatches 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Punnonen, Juha
APPLICANT: Bass, Steven H.
APPLICANT: Whalen, Robert Gerald
APPLICANT: Howard, Russell
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 16, Application US/09247890 Publication No. US20020198162A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 174; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Stemmer, Willem P.C.
APPLICANT: Maxygen, Inc.
TITLE OF INVENTION: Antigen Library Immunization
FILE REFERENCE: 018097-028710US
                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: Woodchuck hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: 200154
INFORMATION FOR SEQ ID NO: 4:
                    128 GPLGPLLVLQAGEFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSCP 187
                                                                                                              73 TFH-----QTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENITS 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          176 QNSQSPTSNHSPTSCPPTCPGYRWMCLRRPIIFLFILLLCLIFLLVLLDYQGWLPVCPLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   296 ŚWISILVPFYQWFYGLSPTYWLSYIWWWWYWGPSIYSILSPFLPLFPFFCLWYYI 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          292 SWLSLLVPFYQWFYGLSPTVWLSVIWMMYWYGPSLYSILSPFLPLLPIFPCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       232 PGSSTTSTGPCRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARF 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172 QNSQSETSNHSPTSCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLI 231
                                                                                         σ
TOPOLOGY: linear MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                           TFHLQGFVDGLRDLTTTERQHNAYGDPFTTLSPAVPTVSTILSPPSTTGDPALSPEMSPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 617/542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 20-JUN-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PGSSTTSTGPCRTCMTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWBWASARF 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 351 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Clark, Paul T.
REGISTRATION NUMBER: 30,162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51.7%;
98.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 997; DB 10;
Pred. No. 1.5e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             00786/282001
                                                                                                                                                                                             DB 9;
                                                                                                                                                           85;
                                                                                                                                                           Indels
                                                                                                                                                                                             Length 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 351;
                                                                                                                                                       7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,,</u>
                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235
                                                                                                                                                       'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT 12
US-09-812-862-8
; Sequence 8, Application US/09812862
; Patent No. US20020035081A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                   á
                               Ś
                                                                  밁
                                                                                                                                                                                                             US-09-812-862-8
밁
                                                                                                                                                          Query Match
Best Local (
                                                                                                                                       Matches 112;
                                                                                                                                                                                                                                                                                                           TELEX: 200154
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183 SAODMYTPPYCCCLKPTAGNCTCWPIPSSWALGNYLWEWALARFSWLNLLLVPLLOWLGGI 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 248
                    . 294 LSLLVPRVQWFVGLSPTVWLSVIWNMYWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                   176
                                                                                        234 SSTTSTGPCRTCTTPAQGTSMYPSCCCTKDSDGNCTCIPIPSSWAFGKFLWEWASARFSW 293
                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Wands, Jack R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTCNGFRWWYLRREITYLLVLLCLIFLLVLLDWKGLIPVCPLQPTTETTVN--CRQCTI 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLIPGSSTTSTGPCRTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 08/667,073
FILING DATE: «Unknown»
APPLICATION NUMBER: 08/492,489
FILING DATE: 20-JUN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: F10ppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARESWLSLLVPFVQWFVGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/09/812,862
FILING DATE: 20-Mar-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Clark, Paul T.
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 00786/282001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5970
                                                                                                                                                                                                                            TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 8:
                                                                   ŚŚTTŚTGPCRTCMTTAQGTŚMYPŚCCCTKPŚDGNCTCIPIPŚŚWAPGKFLWEWASARFŚW 235
LS;LVPFVQWFVGLSPTVWLSVIWWWWYWGPSLYSILSPFLPLLPIFFCLWVYI 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Boscon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: USA
                                                                                                                                                                                                                                                                               LENGTH: 289 amino acids
                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 617/542-8906
                                                                                                                                           Conservative
                                                                                                                                                           33.8%;
                                                                                                                                         0;
                                                                                                                                                           Score 652; DB 10;
Pred. No. 7.5e-42;
                                                                                                                                             Mismatches
                                                                                                                                                                                Length 289;
                                                                                                                                                Indels
                                                                                                                                                  0
                                                                                                                                                  Сарв
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                247
                                                                                                                                                    0
```

```
RESULT 13
US-09-812-862-2
US-09-812-862-2
; Sequence 2, Application US/09812862
; Patent No. US20020035081A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-812-862-2
                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                             밁
US-09-818-066-55

Sequence 55, Application US/09818066

Patent No. US20020032307A1

; GENERAL INFORMATION:
                                                                                                                                                                         Ś
                                                                                                                                                                                                                  밁
                                                                             RESULT 14
                                                                                                                                                                                                                                                                                                                                                                           Matches 111;
                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEX: 200154
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 346 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:

APPLICATION UNMBER: 08/667,073

APPLICATION UNMBER: 08/492,489

APPLICATION NUMBER: 08/492,489

APPLICATION NUMBER: 08/492,489

FILING DATE: 20-JUN-1995

ATTORNEY/AGENT INFORMATION:

NAME: Clark, Paul T.

REGISTRATION NUMBER: 30,162

REFERENCE/DOCKET NUMBER: 00786/282001

TELEPHONE: 617/542-8906

TELEPHONE: 617/542-8906
                                                                                                                                                                                                                                                                                                                  172 QNSQSPTSNHSPTSCPPTCPGYRWNCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLI 231
                                                                                                                                                                                                                                                                                             173
                                                                                                                                                                                                                    233
                                                                                                                                        291
                                                                                                                                                                     292 SWISLLVPFVQWFVGLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Wands, Jack R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PRECENTIN Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                            PGSSTTSTGPCRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARF 291
                                                                                                                                                                                                                                                                                           PTTETTVN--CROCTISAODMYTPPYCCCLKPTAGNCTCWPIPSSWALGNYLWEWALARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/09/812,862 FILING DATE: 20-Mar-2001 CLASSIFICATION: <UNKnown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: .225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                         33.6%; Score 649; DB 10; 63.1%; Pred. No. 1.5e-41; tive 21; Mismatches 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                      Length 346;
                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

1.

APPLICANT: Shuping Tong et al

CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C. TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR NUMBER OF SEQUENCES: 75

STREET: 225 Franklin Street

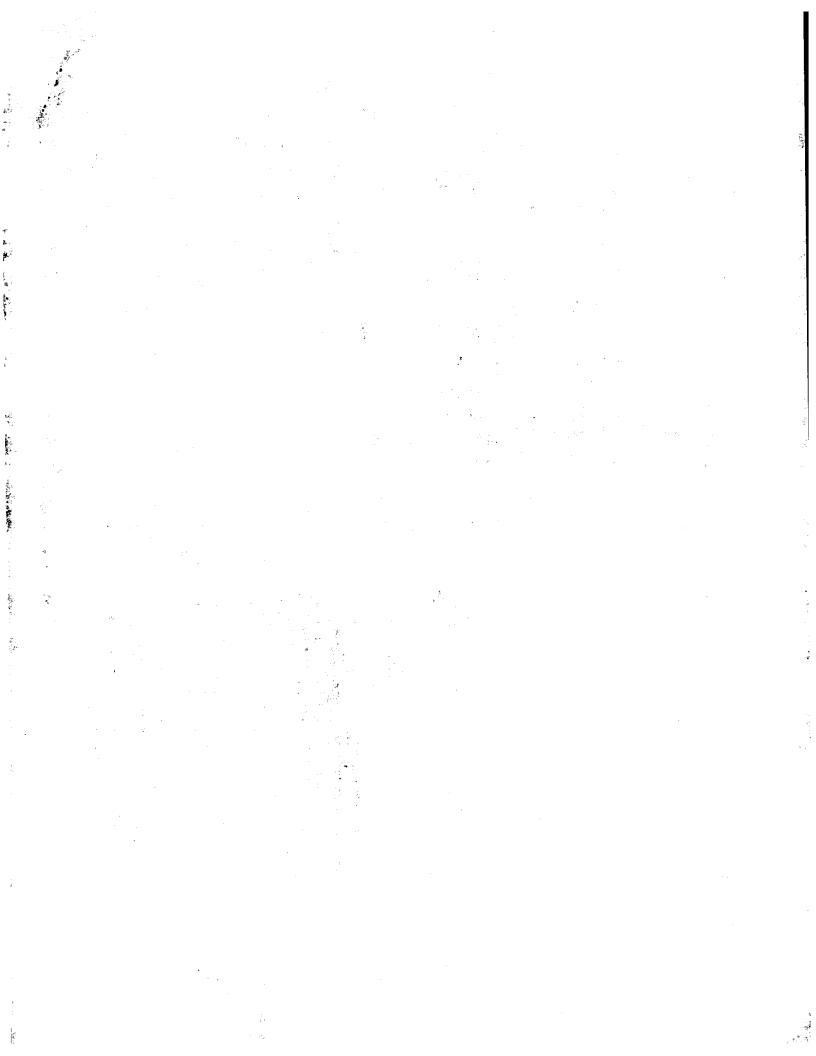
```
RESULT 15
US-09-818-066-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                           Sequence 54, Application US/09818066
Patent No. US20020032307A1
GENERAL INFORMATION:
APPLICANT: Shuping Tong et al.
TITLE OF INVENTION: HEPADNAVIRUS RECEPTOR
NUMBER OF SEQUENCES: 75
CORRESPONDENCE ADDRESS:
ADDRESSEB: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-818-066-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEX: 200154
INFORMATION FOR SEQ ID NO: 55:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/09/818,066
PILING DATE: 27-Mar-2001
CLASSIBICATION: «Unknown»
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/683,262
PILING DATE: 18-JUL-1996
APPLICATION NUMBER: US 08/683,262
PILING DATE: 18-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRIGDPALN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALN 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59
COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION NUMBER: US/09/818,066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6 GAGAPGIGFTPPHGGLIGWSPQAQGILETLPANDPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO: 55:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGAFGLGFTÞÞHGGLLGWSÞQAQGIIQTLÞANÞÞÞASTNRQSGRQÞTÞLSÞÞLRTTHÞQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION
                                                                                                                                                                      STATE: Massachusetts COUNTRY: U.S.A.
                                                                                                                                                                                                            CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 174 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Praser, Janis K.
REGISTRATION NUMBER: 31,819
REFERENCE/DOCKET NUMBER: 00786/287002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE: (617) 542-50
TELEPAX: (617) 542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: Boston
STATE: Massachusetts
COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31.8%; Score 613; DB 10;
96.6%; Pred. No. 3.5e-39;
tive 2; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

```
밁
                                             Ś
                                                                                  片
                                                                                                                Ś
                                                                                                                                                                                                                         US-09-818-066-54
                                                                                                                                              Query Match
Best Local Similarity
Matches 112; Conservat
                                                                                                                                                                                                                                                                                                                                             TELEX: 200154
INFORMATION FOR SEQ ID NO: 54:
119 AMQMNSTTEHQTLQDPRVRGLYLPAGGSSSGTVNPVPTTVSPISSIFSRTIDPALN 174
                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/683,262
FILING DATE: 18-JUL-1996
ATTORNEY/AGENT INFORMATION:
NAME: Fraser, Janie K.
REGISTRATION NUMBER: 31,819
REFRENCE/DOCKET NUMBER: 00786/28701
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 542-5070
                      66 AMQWNSTTFHQTLQDFRVRGLYFFAGGSSSGTVNPVFTTVSFISSIFSRIGDFALN 121
                                                                                  59
                                                                                                                    σ
                                                                                                                                                                                                                               TYPE: amino acids
TYPE: amino acid
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 54:
                                                                   GAGAFGLGFTÞÞHGGLLGWSÞQAQGILQTLÞANÞÞÞASTNRQSGRQÞTÞLSÞÞLRNTHÞQ 118
                                                                                      GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 27-Mar-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (617) 542-8906
                                                                                                                                                  Conservative
                                                                                                                                                               31.3%;
                                                                                                                                                1:
                                                                                                                                          Score 604; DB 10;
Pred. No. 1.7e~38;
1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                    00786/287002
                                                                                                                                                                            Length 174;
                                                                                                                                            Indels
                                                                                                                                          <u>.</u>
                                                                                                                                        Gaps
```

0

Search completed: February 3, 2003, 09:35:27 Job time: 13.6951 secs



```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                1868
1868
1648.5
1539
1539
1539
1539
1233
1233.5
1233.5
1233.5
1233.5
                                                                                                                                                                                               1868
1868
1868
                                                                                                                                                                                                                                                                       1870
                                                                                                                                                                                                                                                                                  1870
                                                                                                                                                                                                                                                                                             1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                     Query
Match Length
                 Issued_Patents AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-890-752A-1
1929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         February 3, 2003, 09:22:17; Search time 21.1585 Seconds (without alignments)
482.536 Million cell updates/s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MGRGDGAGAFGLGFTPPHGG......SILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copyright
                GenCore version 5.1.3 (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                        멾
            US-08-105-483-216
US-08-105-483-219
US-08-709-209-219
US-08-709-209-216
US-08-458-101-216
US-08-458-101-219
US-08-458-107A-116
US-08-484-223B-106
US-08-484-223B-106
US-08-475-668A-106
US-08-475-668A-106
US-08-471-913A-106
US-08-471-913A-106
US-08-471-913A-106
US-08-471-913A-106
US-08-471-913A-106
US-08-471-913A-106
US-08-471-913A-106
US-08-105-483-214
US-08-105-483-214
US-08-105-483-214
US-08-378-011A-1
US-08-378-011A-1
US-08-378-011A-1
US-08-392-929B-1
US-08-932-929B-3
US-08-932-929B-3
US-08-932-929B-3
                                                                                                                                                                                                                                                                                                                                                                                          SUMMARIES
       Patent No. 5164485
Sequence 14, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 6, Appli
                                                                                           Sequence 214, App
Sequence 214, App
Sequence 214, App
Patent No. 5164485
                                                                                                                                                     Sequence 106,
Sequence 106,
Sequence 106,
Sequence 106,
                                                                                                                                           Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cell updates/sec
                                                                                                                                                                                                     Sequence
Sequence
                                                                                                                                                                                                                                        Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                                                                               Sequence
Sequence
                                                                                                                                                                                                                                                                                                   Sequence
Sequence
                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                        .6, App
16, App
16, App
19, App
19, App
19, App
19, App
19, App
19, App
19, App
19, App
106, App
106, App
106, App
106, App
106, App
106, App
106, App
106, App
106, App
106, App
                    δ
                                                                                           US-08-105-483-216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 1
US-08-105-483-216
                                        Query Match 96.9
Best Local Similarity 98.0
Matches 335; Conservative
                                                                                                                              TYPE:
6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
```

Result

ö

Database

4 <u>4</u> U	44	4ω	42	41	40	39	38	37	36	35	34	. U	3.2	<u>3</u>	با د د د) (28
1114	1114	1114	1142	1142	1142	1142	1142	1160	1160	1160	1160	1160	1197	1206	7772	1217	1217
57.8	57.8	57.8	59.2	59.2	59.2	59.2	59.2	60.1	60.1	60.1	60.1	60.1	62.1	62.5	62.8	63.1	63.1
228	228	228	228	228	228	228	228	228	228	228	228	228	226	226	225	226	226
۲	μ	٢	Ŋ	N	μ	۲	۳	ហ	N	۳	μ	μ	6	,	σ	თ	D
US-08-059-031-4	US-08-450-943-4	US-08-447-591-4	PCT-US94-05090-3	US-08-450-942-3	US-08-059-031-3	US-08-450-943-3	US-08-447-591-3	PCT-US94-05090-2	US-08-450-942-2	US-08-059-031-2	US-08-450-943-2	US-08-447-591-2	5198348-1	US-08-378-011A-3	5436139-4	5436139-5	5196194-21
. 4.	4		. س	Sequence 3. Appli	ω (<u>ا</u> س		N.	Ν.	Ν.	N.	Sequence 2, Appli	51	nce 3	Patent No. 5436139	Patent No. 5436139	Patent No. 5196194

ALIGNMENTS

```
APPLICATION NUMBER: US/08/105,483
FILING DATE: 12-AUG-1993
CLASSIFICATION 1424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/847,951
FILING DATE: 06-MAR-1992
AFTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2400
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-333
INFORMATION FOR SEQ ID NO: 216:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No. 549480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 216, Application US/08105483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: PAOLETI, ENZO
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINB
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 462
CORRESPONDENCE ADDRESS:
ADDRESSER: Curtis, Morris & Safford
ADDRESSER: C/O William S. Frommer
                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING YSTEM: PC-DOS/MS-DOS
COPTMAND.
                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
STRANDEDNESS: sir
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: U
ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 530 Fit
CITY: New York
STATE: NY
                                   amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              530 Fifth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                 single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                Release #1.0, Version #1.25
```

96.9**%**;

Score 1870; DB 1; Pred. No. 3.4e-157; 3; Mismatches 4;

Length 389; Indels

0,

Gaps

```
RESULT 2
US-08-105-483-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र
                    ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Paoletti, En:
TITLE OF INVENTION: GENI
TITLE OF INVENTION: STR.
NUMBER OF SEQUENCES: 46:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 219, Application US/08105483 Patent No. 5494807
                                                     Best Local Similarity Matches 335; Conserv
                                                                                        Query Match
                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/847,951

PILING DATE: 06-MAR-1992

ATTORNEY/AGENT INFORMATION:

NAME: Frommer, William S.

REGISTRATION NUMBER: 25.506

REFERENCE/DOCKET NUMBER: 454310-2400

TELEPHONE: (212) 840-3333

TELEPHONE: (212) 840-3333
                                                                                                                                                                                                                                  TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 219:
                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PATEN: PC-DOS/MS-DOS
SOFTMARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/105,483
FILING DATE: 12-AUG-1993
CLASSIFICATION: 424
CLASSIFICATION: 424
                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 550
STREET: 550
CITY: New York
CTATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARESWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Curtis, Morris & Safford ADDRESSEE: c/o William S. Frommer STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CPPTCPGYRWMCLRRPITPLFILLCLIPLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENETICALLY ENGINEERED VACCINE STRAIN
                                                                         96.9%;
98.0%;
                                                         Score 1870; DB 1;
Pred. No. 3.4e-157;
3; Mismatches 4;
                                                                                            Length 389;
                                                            Indels
                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245
                                                            0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 3
US-08-709-209-216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 216, Application US/08709209
Patent No. 5762938
GENERAL INFORMATION:
APPLICANT: Paoletti, Enzo
                                                                                                                                                                                                              COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.
CURRENT APPLICATION DATA:
SPELICATION NUMBER: US/08/709,209
FILING DATE: 21-AUG-1996
FILING DATE: 21-AUG-1996
CLASSIFICATION NUMBER: US 08/105,483
APPLICATION NUMBER: US 07/847,951
FILING DATE: 12-AUG-193
APPLICATION NUMBER: US 07/847,951
FILING DATE: 06-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFIRENCE/DOCKET NUMBER: 454310-2400
TELEPHAN: (212) 840-0712
TELEPHAN: (212) 840-0712
TELEPHAN: (212) 840-0712
Query Match 96.9%; Score 1870; DB 1; Length 389; Best Local Similarity 98.0%; Pred. No. 3.4e-157; Matches 335; Conservative 3; Mismatches 4; Indels
                                                                                                                                                            TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: PAOLETTI, ENZO
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126 TSGFLGFLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: C/O William S. Frommer
STREET: 530 Fifth Avenue
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLUPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                       STRANDEDNESS:
TOPOLOGY: li
                                                                                                                                       TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPPTCPGYRWMCLRRPIIPLFILLLCLIPLLVILDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CPPTCPGYRWACLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMOMNGTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                           ____: single
linear
                                                                                                                                                                                              ) 840-0712
) NO: 216:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
```

Gape

0,

```
COMPUTER READABLE FORM:

MEDIUM TYPE: Ploppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOSTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/709,209
PILING DATE: 21-AUG-1996

CLASSIFICIATION: 424
PRIOR APPLICATION NUMBER: US 08/105,483
PILING DATE: 12-AUG-1993
APPLICATION NUMBER: US 07/847,951
PILING DATE: 16-MAR-1992
APPLICATION NUMBER: US 07/847,951
PILING DATE: 16-MAR-1992
APPLICATION NUMBER: US 07/847,951
PILING DATE: 16-MAR-1992
AFTORMEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 454310-2400
PELECOMMUNICATION NUMBER: 454310-2400
PELECOMMUNICATION NUMBER: 454310-2400
PELEFAN: (212) 840-3333
TELEFAN: (212) 840-3333
TELEFAN: (212) 840-3333
INFORMATION FOR SEQ ID NO: 219:
SEQUENCE CHARACTERSTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 4
US-08-709-209-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 219, Application US/08709209 Patent No. 5762938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: Paolet
                                                     APPLICANT: Paoletti, Enzo
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           348 GLSPTVWLSVIWWWYWGPSLYSILSPELPLLPIEPCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 530 Fil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228 CPPTCPGYRWMCLRRPIIFLFILLLCLIFLLVILDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: c/o William S. Frommer
STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRMMCLRREIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSGPLGPLLVLQAGPFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
96.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       462
Score 1870; DB 1;
Pred. No. 3.4e-157;
             Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
```

```
RESULT 5
US-08-458-101-216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                           COUNTER TOTAL

ZIP: 10036

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC Compatible

COMPUTER: IBM PC COMPUTER: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/458,101

FILING DATE: 01-UW-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No. 5766599
GENERAL INFORMATION:
APPLICANT: Paolet
APPLICANT: Perkus
INFORMATION FOR SEQ ID NO:
               CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 4543
TELECHMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
TELEPHONE: (212) 840-0712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 216, Application US/08458101 Patent No. 5766599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 335; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Pincus, Steven E.
APPLICANT: Cox, William I.
APPLICANT: Audonnet, Jean-Christophe Francis
APPLICANT: Gettig, Russell Robert
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 467
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                               STREET: 530 Fifth Avenue CITY: New York STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306 GLSPTVWLSVIWMMWYWGPSLYSILSPELPYLPIEFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             168
                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Curtis, Morris & Safford ADDRESSEE: c/o William S. Frommer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLSPTVWLSVIWMWWWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAOGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWL5LLVPFVOWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRMMCLRRFIIFLFLILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSGFLGPLLVLQAGFFLLTRİLTİPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQWNSTTFHQTLQDFRVRGLYFFAGGSSSGTVNFVFTTVSFISSIFSRIGDFALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGAFGIGFTPPHGGILGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Johnson, Gerard P. Pincus, Steven E. Cox, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       de Taisne, Charles
Limbach, Keith J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tartaglia, James
No. 5766599ton, Elizabeth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Riviere, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Paoletti, Enzo
Perkus, Marion E.
Taylor, Jill
                                                                     454310-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227
```

```
ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                皮
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-458-101-216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-458-101-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 335; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 219, Application US/08458101 Patent No. 5766599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acid
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compartible
CORRATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/458,101
FILING DATE: 01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                   APPLICANT: Gettig, Russell Robert
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 467
                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 389 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246 TTPAQGTSMYPSCCCTKDSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                            CITY: New York
STATE: NY
                                                                                                                                                                                           STREET:
                                                                                                                                                                                        ADDRESSEE: Curtie, Morrie & Safford ADDRESSEE: c/o William S. Frommer STREET: 530 Fifth Avenue
                                                                                                                                 ZIP: 10036
                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIPSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQMNSTTFHQTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGWLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLSPTVWLSVIWMWWWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVWLSVIWMWYWGPSLYSILSPFLFLLFIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                Limbach, Keith J.
Johnson, Gerard P.
Pincus, Steven E.
Cox, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                  de Taisne, Charles
Limbach, Keith J.
                                                                                                                                                                                                                                                                                                                                                                                                                              Tartaglia, James
No. 5766599ton, Elizabeth
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Perkus, Marion E. Taylor, Jill
                                                                                                                                                                                                                                                                                                                                                                                                              Riviere, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Paoletti, Enzo
                                                                                                                                                                                                                                                                                                                    Audonnet, Jean-Christophe Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96.91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1870; DB 1;
pred. No. 3.4e-157;
3; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>~
                                                         #1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-458-101-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (212) 840-333
TELEPAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 219:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
STRANDENNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 7
US-08-486-099-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Bologne:
APPLICANT: Matthew:
APPLICANT: Wild, C:
APPLICANT: Barney,
APPLICANT: Lambert
                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 106, Application US/08486099 Patent No. 6013263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/MOUNTON INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve
                                                                                                                                                                                                                    APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF
TITLE OF INVENTION: MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HEPATITIS
TITLE OF INVENTION: B VIRUS TRANSMISSION
                                                                                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108 AMQWNSTTFHOTLODPRVRGLYFPAGGSSSGAVNPVPTTASPLSSTFSRIGDPALNMENI 167
                                                                                                                                                                                                        NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         306 GLSPTVWLSVIMMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         168 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWMTSLNFLGGTTVCLGQNSGSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126 TSGFLGPLLVLQAGFFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 GAGAPGLGFTDPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                      CITY: New York
                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMQWNSTTFHOTLODDRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQTGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MTTAQGTSMYPSCCCTKPSDGNCTCTP1PSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New York
                                                                                                                                                         1155 Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                            Bolognesi, Dani P.
Matthews, Thomas J.
Wild, Carl T.
                                                                                                                                                                                                                                                                                                                          Barney, Shawn O.
                                                                                                                                                                                                                                                                                                            Lambert, Dennis M.
                                                                                                                                                                      Pennie &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96.9%;
                                                                                                                                                                                                             209
                                                                                                                                                         Edmonds
of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             454310-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1870; DB 1;
Pred. No. 3.4e-157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
       Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
Patent No. 6017536
GENERAL INFORMATION:
APPLICANT: Bolognes
APPLICANT: Matthew
APPLICANT: Wild, Co
                                                                                                                                                                                                                                                                                                                                                                                          RESULT 8
US-08-360-107A-116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-486-099-106
                                                                                                                                                                                                                                                                                                                                                    Sequence 116, Application US/08360107A Patent No. 6017536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/486,099
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: COCUZZÍ LAURA A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-031
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPAX: (212) 869-9741/8864
TELEPAX: 62141 BENNIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
                                                                                                                           APPLICANT: Barney, Shawn O.
APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR INHIBITION
TITLE OF INVENTION: OF MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HIV
TITLE OF INVENTION: TRANSMISSION
NUMBER OF SEQUENCES: 149
                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                 STATE: New York
                                                CITY: New York
                   COUNTRY:
                                                                        STREET:
                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6 GAGAFGIGFTPPHGGILGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match 96.8%;
Local Similarity 98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GLSPTVWLSVIWMWWYWGPSLYSILSPELPLLPIPFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CPPTCPGYRMMCLRREIIELEILLLCLIELLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWYTSLNFLGGTTVCLGQNSQSPTSNHSPTS 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNFVFTTVSDISSIFSRIGDFALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
RY: USA
10036-2711
                                                                    E: Pennie & Edmonds
1155 Avenue of the /
                                                                                                                                                                                                                                                                            Wild, Carl T.
                                                                                                                                                                                                                                                                                              Bolognesi, Dani P. Matthews, Thomas J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1868; DB 3; Length 389; Pred. No. 5.2e-157; 2; Mismatches 4; Indels
                                                                    Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                     US-08-484-223B-106
                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / TOPOLOGY: unknown
/ MOLECULE TYPE: protein
US-08-360-107A-116
                                                                                                                                                                                                                                            Sequence 106, Application US/08484223B Patent No. 6020459 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 96.8%;
Best Local Similarity 98.2%;
Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPUTER:
OPERATING SYSTEM: PC-DOS/MS-POS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/360,107A
PILING DATE: 20-DEC-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 116:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: COTUZZÍ, Laura A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                               APPLICANT: Lambett, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF
TITLE OF INVENTION: MEMBRANE FUSION-ASSOCIATED EVENTS,
TITLE OF INVENTION: TRANSMISSION
                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                   CORRESPONDENCE ADDRESS:
                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                      306 GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                              288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246 TTPAQGTSMYPSCCCTXPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFYQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLFANPFPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRWMCLERFIFLFILLLCLIFLLVILLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                    Bolognesi, Dani P.
Matthews, Thomas J.
Wild, Carl T.
                                                                                                                                                                   Barney, Shawn O
& Edmonds LLP
                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7872-013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1868; DB 3;
Pred. No. 5.2e-157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 389;
                                                                    INCLUDING HIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           167
```

STREET: 1155 Avenue CITY: New York

ð, the

Americas

10036-2711 New York

USA

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ફ
                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                            용
                                                                                                                                                                                        RESULT 10
US-08-919-597-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: protein -08-484-223B-106
                                                                                                                                  Sequence 106, Application US/08919597
Patent No. 6054265
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
APPLICANT: Bolognesi, Dani P.
APPLICANT: Matthews, Thomas J.
APPLICANT: Wild, Carl T.
APPLICANT: Barney, Shawn O.
APPLICANT: Lambert, Dennis M.
APPLICANT: Lambert, Dennis M.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: METHODS AND C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/484,223B FILING DATE: 07.-JUN-1995 CLASSIFICATION: 435 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: CORUZZI, LABIRA A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-029
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9990
TELEPHONE: (212) 790-9990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        108
                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                   186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                168 TSGFLGFLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match 96.8%;
Local Similarity 98.2%;
Les 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMOWNSTTFHQTLQDERVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                            GLSPTVMLSVIMMMWYMGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                 CPPTCPGYRWMCLRRF11FLF1LLCL1FLLVLLDYQGMLPVCPL1FGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSFTS 185
                                                                                                                                                                                                                                                                                                                               389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown
     METHODS AND COMPOSITIONS FOR INHIBITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1868; DB 3; Length 389; pred. No. 5.2e-157; 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                                                                                                                                                      305
                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
TELEFAX: (214, NIB
TELEX: 66141 PENNIB
TELEX: 66141 PENNIB
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein US-08-919-597-106
                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                    융
                                                                                                                                                                                                                                                                                                                                            8
                                                                                          á
                                                                                                                            밁
                                                                                                                                                     5
                                                                                                                                                                                       밁
                                                            밁
                                                                                                                                                                                                                                                                                                                                                                           Query Match 96.8%;
Best Local Similarity 98.2%;
Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CILASSIFICATION:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/470
PILING DATE: 06-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZÍ, LAURA A.
REGISTRATION NUMBER: 30,742
REGISTRATION NUMBER: 7872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: OF TITLE OF INVENTION: TR NUMBER OF SEQUENCES: 2 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
CORRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/919,597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 787
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Pen:
STREET: 1155 A:
CITY: New York
                                                                                                                                                           186
                                                                                                                                                                                         168
                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 10036-2711
288
                                                                                                                            228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
TOPOLOGY: un
                                                                                             246
                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                               MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                       TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                         TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                    AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                      AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLMEWASARFSWLSLLVPFVQWFV
                                                                                                                          CPPTCPGYRWMCLRRFITFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                             CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1155 Avenue of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING HIV TRANSMISSION 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US 08/470,896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7872-020
                                                                                                                                                                                                                                                                                                                                                                                  <u>۲</u>
                                                                                                                                                                                                                                                                                                                                                                                  Score 1868; DB 3;
Pred. No. 5.2e-157;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                Length 389;
                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                  245
                                                                                                                                                                                                 227
                                                                                                     305
                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                         0
```

RESULT 11
US-08-475-668A-106
; Sequence 106, Application US/08475668A
; Patent No. 6060065
; GENERAL INFORMATION:

```
RESULT 12
US-08-485-551A-106
; Sequence 106, Application US/08485551A
; Patent No. 6068973
                                                                                                                                                                      밁
                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: un; MOLECULE TYPE: US-08-475-668A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, Laura A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-
TELECOMMUNICATION INFORMATION:
TELEPAX: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA;
APPLICATION NUMBER: US/08/475,668A
FILING DATE: 07-JUN-1995
CLASSIFICATION: 424
                                                                                                         348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                               288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                       246
                                                                                                                                                                                                                                        228
                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                          168
                                                                                                                                                                                                                                                                                                                                         126
                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Pennic
STREET: 1155 Aver
CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                        66
                                                                                                                                                                                                                                                                                                                                                                                                                                         48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                  GLSPTVMLSVIMMYMGPSLYSILSPFLPLLPIFFCLMVYI 389
                                                                                                                       GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                  TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPEVQWFV
                                                                                                                                                                                                                              CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                   CPPTCPGYRMMCLRRFIIFLFILLCLIFILVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                     AMQWNSTTFHQTLQDPRVRGLYPPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNWENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAFGIGFTPPHGGILGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                              TŚGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                               GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96.8%;
llarity 98.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Barney, Shawn O.
Lambert, Dennis M.
Petteway, Stephen R.
Petteway, Compositions FOR INHIBITION OF MEMBRANE
VENTION: FUSION-ASSOCIATED EVENTS, INCLUDING INFLUENZA VIRUS
EQUENCES: 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1868; DB 3; Length 389; Pred. No. 5.2e-157; 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7872-026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                167
                                                                                                                                                                                                305
                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
밁
                                                                                               Ś
                                                                                                                                  밁
                                                                                                                                                                S
                                                                                                                                                                                                  묽
                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                     닭
                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-485-551A-106
                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 336; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
COUNTRY: USA
COMPUTER 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Vers
CURRENT APPLICATION DATA;
APPLICATION NUMBER: US/08/485,551A
FILING DATE: 07-UN-1995
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Bologn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: METHODS FOR INHIBITION OF
TITLE OF INVENTION: FUSION-ASSOCIATED EVENTS,
TITLE OF INVENTION: TRANSMISSION
NUMBER OF SEQUENCES: 211
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: unknown MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 787:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9990
TELEPAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: Coruzzi, Laura A.
REGISTRATION NUMBER: 30,742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                  168
                                                                                                                                                                   186
                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                  66
                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: New York
                                                                                                                                                                                                                                                                                                                                               6 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
               GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFPCLWVYI 347
                                                           MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWBWASARPSWLSLLVPFVQWFV
                                                                                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWBWASARFSWLSLLVPFVQWFV 305
                                                                                                                         CPPTCPGYRWMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTGPCRTC
                                                                                                                                         CPPTCPGYRMMCLRREIIFLFILLLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGFCRTC
                                                                                                                                                                                        TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                             AMQMUSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSDISSIFSRIGDPALNMENI 125
GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                            AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                           GAGAPGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   i: 389 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MALL...
Bolognesi, Dam.
Haws, Thomas
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matthews, Thorwild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Barney, Shawn O
                                                                                                                                                                                                                                                                                                                                                                                                                96.8%;
                                                                                                                                                                                                                                                                                                                                                                                              Score 1868; DB 3;
Pred. No. 5.2e-157;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7872-023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INCLUDING
                                                                                                                                                                                                                                                                                                                                                                                                                            Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFLUENZA VIRUS
                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                           287
                                                                                                                                                            245
                                                                                                                                                                                            227
                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                              167
                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                                                                           0,
```

```
RESULT 13
US-08-471-913A-106
                                                                                밁
                                                                                                                     S
                                                                                                                                                                 밁
                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; TOPOLOGY: unknown
; MOLECULE TYPE: protein
US-08-471-913A-106
                                  á
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No. 6093794
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION UNUMBER: US/08/471,913A
FILING DATE: 07-JUN-1995
CLASSIFICATION: 4.35
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, LAUYA A.
REGISTRATION NUMBER: 30,742
REGISTRATION NUMBER: 7872-030
TELEPHONE: (212) 790-9090
TELEPHONE: (212) 790-9090
TELEPAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Barney, Shawn O.
APPLICANT: Lambert, Dennis M.
APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF MEMBRANE
TITLE OF INVENTION: FUSION-ASSOCIATED EVENTS, INCLUDING EPST
TITLE OF INVENTION: TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: New York
STATE: New York
COUNTRY: USA
                                     246
  288
                                                                                                                                                                                      126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                 108 AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALNMENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                           66 AMQMNSTTFHQTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                  48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                  6 GAGAFGLGETPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                          CPPTCPGYRWMCLRRPIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
  WITTAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                  CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                              TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 227
                                                                                                                                                                                                                                                                                                                                                                                                                    336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10036-2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/08471913A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                              96.8%;
nilarity 98.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matthews, Thomas J. Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bolognesi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pennie &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Edmonds LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dani P.
                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1868; DB 3; Length 389; pred. No. 5.2e-157; 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INCLUDING EPSTEIN-BARR VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                         <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                       287
                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-485-264A-106
                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-485-264A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 106, Application US/08485264A Patent No. 6228983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/485,264A
FILING DATE: 07-UN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: COTUZZI, Laura A.
BEGITGWATTON NUMBER: 30 742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Bologne
APPLICANT: Matthe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 336; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (212) 869-9741/886
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 106:
SEQUENCE CHARACTERISTICS:
LENGTH: 389 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Wild, Carl T.

APPLICANT: Barney, Shawn O.

APPLICANT: Lambert, Dennis M.

APPLICANT: Lambert, Dennis M.

APPLICANT: Lambert, Stephen R.

APPLICANT: Langlois, Alphonse J.

TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF

TITLE OF INVENTION: MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUI

TITLE OF INVENTION: RESPIRATORY SYNCYTIAL VIRUS TRANSMISSION

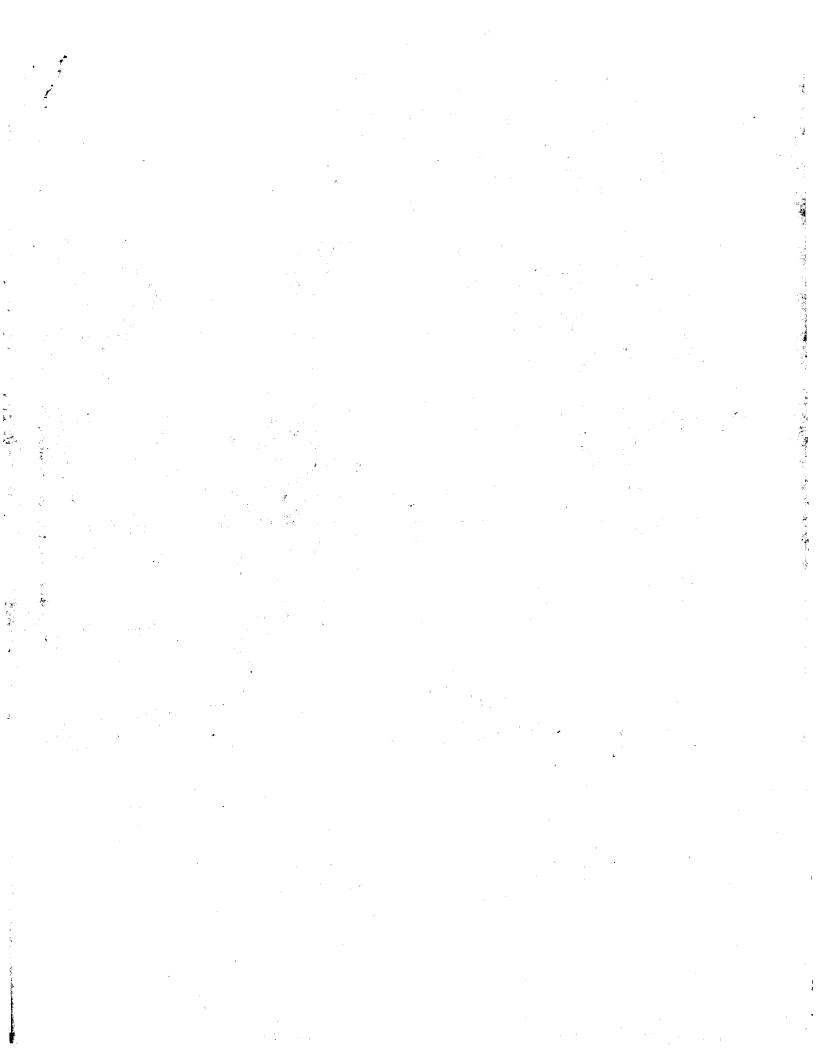
NUMBER OF SEQUENCES: 232

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-021
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     348 GLSPTVWLSVIWMWWWGPSLYSILSPFLPLLPIPFCLWVYI 389
                                                186
                                                                                                                          168
                                                                                                                                                                   126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                                                                                                   48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6 GAGAFGLGFTPPHGGLIGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVWLSVIWMWWYWGPSLYSILSPFLPLLPIFFCLWVYI
CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLFVCPLIPGSSTTSTGFCRTC 245
                                                                                                                                                                                                                                                                             AMQMNSTTFHQTLQDERVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALMMENI
                                                                                                                                                                                                                                                                                                                         AMQWNSTTFHOTLODFRVRGLYFPAGGSSSGTVNFVFTTVSFISSIFSRIGDFALMMENI 125
                                                                                                                      TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matthews, Thomas J. Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bolognesi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pennie & Edmonds LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96.8%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dani P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1868; DB 4; Length 389; Pred. No. 5.2e-157; Simulation of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INCLUDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                 167
                                                                                                                                      227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
货
                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-474-349A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
US-08-474-349A-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                       Query Match 96.8%; Score 1868; DB 4; Length 389; Best Local Similarity 98.2%; Pred. No. 5.2e-157; Matches 336; Conservative 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE: New York
COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATING:
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION UMMBER: US/08/474,349A
FILING DATE: 07-UN-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: COTUZI, Laura A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-(
TELECOMMUNICATION INFORMATION:
TELEFAX: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEX: 66141 PENNIE INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: unknown
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: 
126 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                       108 AMQMNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIGDPALMVENI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Petteway, Stephen R.
APPLICANT: Langlois, Alphonse J.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF MEMBRANE
TITLE OF INVENTION: FUSION-ASSOCIATED EVENTS, INCLUDING HUMAN PARAINPLUENZA
TITLE OF INVENTION: VIRUS TRANSMISSION
NUMBER OF SEQUENCES: 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306 GLSPTVMLSVIMMMYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                         66
                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 389 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246 TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  228 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 1155 Av
                                                                                                                                                                                                                                                                                                                           σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                     GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                          AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSDISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            106, Application US/08474349A
5. 6333395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bolognesi, Dani P. Matthews, Thomas J. Wild, Carl T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lambert, Dennis M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Barney, Shawn O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7872-024
                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                           0
```

```
á
                                                         밁
                                                                                S
                                                                                                           밁
                                                                                                                                 Ś
                                                                                                                                                             밁
306 GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                 246
                                                                                                                                  186
                                                                                                                                                             168
                                               288 MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARPSWLSLLVPPVQWFV 347
                                                                                                 228 CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 287
                                                               TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC 245
                                                                                                                                                     227
```

Search completed: February 3, 2003, 09:27:09 Job time: 23.1585 secs



```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM protein -
                                                                                                                                                                                                                                                                                                                                                 score greater than or equal to the score of the and is derived by analysis of the total score
                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed,
               1868
1803.5
1783
1786
1756
1752
                                                                                                                                                                                                                                                   Score
                                                                                                                                                                  1929
1879
1870
                                                                                                                                           1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein search, using sw model
                                                                                                                                                                                                        100.0
                                                                                                                                                                                                                                                   Match
               97.4
96.9
96.8
93.5
92.4
91.0
90.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10:
11:
12:
13:
14:
15:
16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MGRGDGAGAFGLGFTPPHGG.....SILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pebruary 3, 2003, 09:15:41; Search time 55.6167 Seconds (without alignments) 831.368 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       908470 segs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-890-752A-1
1929
                                                                                                                                                                                                                                                                                                                                                                                                                         | SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT: *
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A_Geneseq_101002:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                              Length DB
             389
389
389
389
393
393
389
400
                                                      21
22
13
13
22
22
22
27
                      AAB1 0596
AAG66931
AAR27472
AAR274772
AAR27474
AAG62931
AAG14097
AAG66932
AAG66932
AAR960794
                                                                                                                                                                                                                                                Ħ
                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                 distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              908470
Amino acid sequenc
Hepatitis B virus
HBV genotype E pre
Hepatitis B virus
Adr-type hepatitis
HBV genotype C pre
                                                                                                                                                                                                                                       Description
                                                                                                                           HBV genotype D pre
lpsAg protein. Sy
I3L promoter/S12/c
                                                                                                                                                                                          HBV fusion protein
```

23	64.9 226 18	64.9 226 2 A	65.3 226 23	65.3 226 19	65.4 280 12	1264 65.5 269 22	65.6 226 22	66.3 249 21	71.7 281 7 A	.5 281 7 A	74.0 281 15	74.4 281 23	5 281 20	74.9 281 22	75.7 281 22	75.7 281 15	75.9 281 8	76.2 281 7	٠,	76.2 281 7 A	77.7 276 19	534 79.5 281 20	281 13	82.3 400 22	.3 400 22	6.5 87.4 387 12	88.1 400 22	704 88.3 400 21	713 68.8 389 23	713 88.8 388 12	721 89.2 400 21	89.5 389 15	90.0 383 9 AAP80416	3 90.4
23			23	19	12	22	22				15	23	20	22	22						19	20	13	22	2	12	22	21	23	12	21	15	ø	22
ABB77764	AAW09045	AAP10001	AAE19897	AAW62826	AAR10850	AAM48418	AAG62930	AAY52545	AAP60164	AAP60561	AAR55281	AAM52693	AAY32834	AAE02620	AAM48419	AAR62870	AAP70294	AAP60617	AAP60560	AAP60163	AAW44780	AAY32835	AAR27471	AAG66933	AAG66929	AAR10852	AAG66928	AAY44349	AAM52682	AAR10851	AAY54045	AAR55287	AAP80416	691
	•	3 5	#		_ 	in #2 need		Pan DR enitone/Hav	a d	Hepatitis B viria		_	Dress-s	2000	1004	Hepatitis B Virgin	Death A	١.	Hepatitis B virus	Subtype adr henati	Modified heratitie	Hanag Press, regi	Single brotein ov	Service P	HBV Genoting a sec	Modified heretica	HRV denotine a no	Human henariria B	Heparitia R virus	Modified henatitie	cid		֓֞֝֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֓֓֓֡֓֓֡	HAN HADOI DECEPT

ALIGNMENTS

HBV fusion protein comprising LHB and RGD

08-JAN-2001 (first entry)

AAB10596;

AAB10596 standard; Protein; 347

A

```
RESULT 1
AAB10596
AID 10596
AID 40811
XX AAB1
AX AAB1
AX BABV
XX BABV
XX Pusi
KW Viru
KW 1arg
XX Hepa
OS Synt
XX Synt
XX 10-A
XX 04-F
PR 04-F
XX 05-F
XX WPI;
PR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;
DR WFI;

Particle for cell-specific gene delivery, useful in gene therapy,
                                                                                                                             WPI; 2000-514959/46.
N-PSDB; AAA71734.
                                                                                                                                                                                                                                                                      Hildt E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-FEB-2000; 2000WO-DE00363.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pusion protein; protein coat; virus-specific packaging signal; psi; virus protein; cell permeability; cell-specific binding site; LHB; large surface protein; core antigen; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                          (HILD/) HILDT B
                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200046376-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis b virus. Synthetic.
                                                                                                                                                                                                                                                                Hofschneider
                                                                                                                                                                                                                                                                                                                                                                                                                                                                99DE-1004800
```

AAG66930

```
FFXSXSSSSSSSSSSSSSSS
RESULT 2
AAG66931
ID AAG1
XX AAG1
XX 19-(
XX HEPV
XX HEPV
XX HEPV
XX HEPV
XX HEPV
XX HEPV
XX HEPV
XX HEPV
XX OS HEPV
XX W021
XX 07-(
XX DE 07-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-(
XX O7-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ৪
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 347; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This invention describes a novel particle (A), comprising a protein coat with a fusion protein (FP), and, inside the coat, a nucleic acid (I) including the sequence for a virus-specific packaging signal (psi) and a structural gene. FP contains a virus protein (VP), a peptide (P) that mediates cell permeability and a heterologous cell-specific binding site (RGD). The invention also describes (I) producing (A) in which FP (RGD) and LHBs (large surface protein of hepatitis B virus (HBV)) and contains an LHBs (large surface protein of hepatitis B virus (HBV)) and RGD; (2) preparing (A) in which FP contains an HBV core antigen (HBcAg), (P) and RGD; (3) FP; (4) DNA encoding FP; and (5) expression vector containing the DNA of (d). The products of the invention are used in gene therapy of cells and tissues, in vivo or ex vivo. This sequence therefore a fusion protein which is described in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         comprises nucleic of viral protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                    HBV genotype
                                                                                                                                                                                                                                                                                                                                                                                                                               19-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG66931 standard;
                                                                              20-NOV-2000, 2000WO-EP11526
                                                                                                                                                                                                                                          Hepatitis B virus.
                                                                                                                                                                                                                                                                                            НВвАд; antiviral;
                                                                                                                                                                                                                                                                                                                        Hepatitis B virus; HBV; preCore;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
03-DEC-1999;
07-DEC-1999;
                                                                                                                                                                                       WO200140279-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    μ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MGRGDGAGAFGLGFTEPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLR 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NMENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWMTSLNFLGGTTVCLGQNSQSPTSN 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSPTSCPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | NTHPQAMOMNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPAL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCRTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPF 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSPTSCPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; imilarity 100.0%; i
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۲
                                                                                                                                                                                                                                                                                                                                                                             ۵
                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A,
                                                                                                                                                                                                                                                                                                                                                                          preS1/preS2/HBsAg polypeptide
     99EP-0870252
99US-0169287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acid in protein coat that includes a fusion permeability peptide and cell-binding site
                                                                                                                                                                                                                                                                                               vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein; 389
                                                                                                                                                                                                                                                                                            eCore; Core; preS1; preS2; HBS; HBX; HBPO1; genotype G; genotyping; HBcAg; HBeAg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1929; DB 21;
Pred. No. 9.2e-143;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               n protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
The invention relates to the complete nucleic acid sequence of a new CC human hepatitis B virus (HBV) genotype, provisionally named genotype CC G. This genotype was found with a high prevalence in patients CC chronically infected with HBV and residing in Burope and the USA. The CC invention relates to a fully defined sequence of 3248 nucleotides as CC given in specification, a sequence with 92% identity to the given CC sequence, or sequence that is degenerate to the mentioned sequences. CC These polynucleotides are useful for HBV genotyping. The proteins CC encoded by the polynucleotides are useful for detecting antibodies in CC encoded by the polynucleotides are useful for detecting antibodies CC directed against the proteins are useful for detecting an antibodies CC and for detecting HBCAg and HBCAG (precore precursor proteins). They CC are also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC infections. The present sequence is provided in an amino acid CC sequence alignment of the preS1, preS2 and HBCAG open reading frame CC of the different HBV genotypes.
RESULT 3
AAR27472
ID AAR2
XX
AC AAR2
AC AAR2
XX
DT 24-F
XX
DE 1ps/
XX
Heps
                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                             8
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Novel isolated and/or purified hepatitis B virus polypeptide and polynucleotide sequences that are phylogenetically different from genotype A-F molecules, useful for HBV diagnosis, prophylaxis and therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 3; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (INNO-) INNOGENETICS
                                                                                                                AAR27472
                                                                                     AAR27472;
                           lpsAg protein.
                                                          24-FEB-1993
                                                                                                                                                                                                                                                                                                                                                            168
                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                                                                                                                                                                                                    108
                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                       348
                                                                                                                                                                                                                306
                                                                                                                                                                                                                                             288
                                                                                                                                                                                                                                                                         246
                                                                                                                                                                                                                                                                                                      228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
les 337; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                        TSGPLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQFTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                     GLSPTVWLSVIWMWWWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                    GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                        TTTAQGTSMYPSCCCTKPSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                            TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                standard; Protein; 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Van Geyt C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97.4%;
milarity 98.5%;
Conservative 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            389
                                                          (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6; 94pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                De Gendt
   protein; small
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1879; DF Pred. No. 8.4e: 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.4e-139;
hes 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 22;
    pre-S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Λ<del>Ω</del>Η
                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                      125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                185
                                                                                                                                                                                                                                                                                 305
                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                    227
```

Hepatitis B virus;

HBV; 3

V

```
S
                                  밁
                                                                                 문
                                                                                                         Ś
                                                                                                                                      Query Match
Best Local S
Matches 335
                                                                                                                                                                                                          the hepatitis B virus (HBV) I protein (large pre-S antigen, lpsAg)
C gene linked to the cowpox hemorraghic region (u) promoter. This DNA
Esquence was used in the construction of a NYVAC recombinant
C expressing the HBV gene. Other HBV genes were also used in the
C construction. These were HBV m protein (small pre-S antigen, spsAg)
C and a fusion protein composed of the entire pre-S region (S12/core,
S1 + S2). Each of these gene sequences were inserted individually
c into three different sites of NYVAC separated by from each other by
A regions of vaccinia DNA containing essential genes. NYVAC is a
C copenhagen vaccine strain of vaccinia virus which has been modified by
C copenhagen vaccine strain of vaccinis of the genome encoding known or
C recipient loci for the insertion of foreign genes. The spacing of the
C three inserted sequences ensured that any recombination that did occur
c would lead to disruption of the vaccinia genome and would cause
C unviable vaccinia virus. See also AAQ35501-864.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-MAR-1991;
11-JUN-1991;
06-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        vaccinia virus; hem
HBV L; large pre-S a
S12/core; S1; S2; Co
virulence factor; de
                                                                                                                                                                                           Sequence
         126
                                  108
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Fig 11; 456pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vaccine comprises recombinant, attenuated vaccinating against viral infections such HIV, HSV, EBV, CMV, mumps etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cox WI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Limbach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (VIRO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-SBP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9215672-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                          99
                                                                                    48
                                                                                                             σ
TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                       AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGAVNPVPTTASPLSSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                              sequence given is encoded by an
                                                                                           GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                          AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                          ĠAĠĀĒĠĹĠ₽ŢĒĒĦĠĠĹĹĠ₩ŚĒĢĀĢĠĬĹQŤĹPĀNĒĒĎĀŚŢŇŔQŢĠŔQĒŢĒĹŚĒĒĹŔŇŢĦŖQ
                                                                                                                                       335;
                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VIROGENETICS CORP.
                                                                                                                                                                                         389
                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tartaglia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Taisne C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Norton
                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91US-0666056.
91US-0713967.
92US-0847951.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92WO-US01906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164..389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hemorraghic region; u; promoter; NYVAC; recombinant; -S antigen; lpBAg; fusion protein; pre-S region; Copenhagen vaccine strain; vaccinia virus; deletion loci; recipient loci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .09..163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 label=
                                                                                                                                              96.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ΕK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Francis J, G
K, Paoletti B,
J, Taylor J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ū,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ß
                                                                                                                                Score 1870; DI
Pred. No. 4.2e
3; Mismatches
                                                                                                                                   ų.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    loci; recipient loci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gettig RR, J
3, Perkus MB,
                                                                                                                                                                                                                                                                                                                                                                                                                          expression vector which comprises
                                                                                                                                             DB 13;
1.2e-138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pox-virus - use for as rabies, hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Johnson GP
B, Pincus
                                                                                                                                Indels
                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 GP;
'8 SE;
                                                                                                                                                        389;
                                                                                                                                0
                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          œ
                                                                            107
                                                                                                      65
                          167
                                                                                                                              0
```

á

The sequence given is encoded by an expression cassette which comprises the hepatitis B virus (HBV) L protein (large pre-S antigen, lpsAg) gene which is precisely linked to the Amsacta moorei entomopoxvirus (AmsBPV) 42 kD promoter. This DNA sequence was used in the construction of a NYVAC recombinant expressing the HBV gene. Other HBV genes were also used in the construction. These were HBV M

```
RESULT 4
ADRESULT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
ADRESOLT 4
AD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                            Vaccine comprises recombinant, attenuated vaccinating against viral infections such HIV, HSV, EBV, CMV, mumps etc.
                                                                                                                                                                                                                                                                                                                                                  Cox WI,
Limbach
                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-MAR-1991;
11-JUN-1991;
06-MAR-1992;
                                                                                                                                           Disclosure;
                                                                                                                                                                                                                                                                     N-PSDB;
                                                                                                                                                                                                                                                                                             WPI:
                                                                                                                                                                                                                                                                                                                                   Riviere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus; HBV; M protein; small pre-S antigen; spsAg; vaccinia virus; Amsacta moorei entomopoxvirus; AmsPV; 42 kD; pro NYVAC; recombinant; HBV L; large pre-S antigen; lpsAg; fusion pr pre-S region; S12/core; S1; S2; Copenhagen vaccine strain; vaccinia virus; virulence factor; deletion loci; recipient loci.
                                                                                                                                                                                                                                                                                                                                                                                                                   (VIRO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24-FEB-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR27474;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR27474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        168
                                                                                                                                                                                                                                                                                       1992-331718/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoter/S12/core gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MITAQGISMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPTCPGYRWMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₹ξ
                                                                                                                                                                                                                                                                   AAQ29106
                                                                                                                                                                                                                                                                                                                                                                                                             VIROGENETICS CORP.
                                                                                                                                                                                                                                                                                                                                                                          De
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             standard;
                                                                                                                                                                                                                                                                                                                          Partaglia J,
                                                                                                                                     Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                    91US-0666056.
91US-0713967.
92US-0847951.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                           15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     92WO-US01906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= S1
109..163
/label= S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /label= S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .64..389
                                                                                                                                  456pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein; 389
                                                                                                                                                                                                                                                                                                                        Francis J,
K, Paoletti
J, Taylor J
                                                                                                                                       English
                                                                                                                                                                                                                                                                                                                   J B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₿
                                                                                                                                                                                                                                                                                                                                           Gettig RR,
E, Perkus N
                                                                                                                                                                                                pox-virus -
as rabies, l
                                                                                                                                                                                                                                                                                                                                                Œ,
                                                                                                                                                                                                                                                                                                                                                               Johnson GP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               389
                                                                                                                                                                                                                                                                                                                                              Pincus

    use for hepatitis

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein;
                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             227
```

```
388888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
RESULT 5
AAG6291
ID AAG6
XX AAG6
XX AAG6
XX AAG6
XX AAG6
XX AAG6
XX B gg
XX B gg
XX B gg
XX Freve
XX Freve
XX HBV
XX HBV
XX 12--
XX 12--
XX 12--
XX 12--
XX 12--
XX 11--
XX (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
PA (IN
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein (small pre-S antigen, spsAg) and a fusion protein composed of the entire pre-S region (S:2/core, S:1 + S:2). Each of these gene sequences were inserted individually into three different sites of NYVAC separated by from each other by large regions of vaccinia DNA containing essential genes. NYVAC is a Copenhagen vaccine strain of vaccinia virus which has been modified by deletion of six non-essential regions of the genome encoding known or potential virulence factors. The deletion loci were engineered as recipient loci for the insertion of foreign genes. The spacing of the three inserted sequences ensured that any recombination that did occur would lead to disruption of the vaccinia genome and would cause unviable vaccinia virus. See also AAQ35501-864.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                 (INRM )
                                                                                                                                                                                                                                                                                                                                                                                                                    S gene; HBsm; mHVB; HBV; pre-S gene; C gene; P gene; X gene; surface antigen; envelope protein; HBsAg; HBeAg; HBcAg; DNA polymerase; reverse transcriptase; HBxAg; immune response; viral protein expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Amino acid sequence of a mutated HBV Pre-S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-SEP-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG62931 standard; Protein; 389
                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         126
                                                                                                                                 06-JAN-2000; 2000FR-0000129
                                                                                                                                                                                                                                                                                                                                                                                                    HBV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108
     Trepo
                                                                                                                                                                                        05-JAN-2001; 2001WO-FR00038
                                                                                                                                                                                                                                                                                              WO200149828-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGFCRTC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMOWNSTTEHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TSGFLGPLLVLQAGPFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSGFLGPLLVLQAGEFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLSPTVWLSVIWWWYWGPSLYSILSPFLFLLDIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            335;
                                                    ) INSERM INST NAT SANTE &
) BIOMERIEUX SA.
  G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389 AA;
           Mandrand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
        œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96.9%;
98.0%;
           Kay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1870; DB 13;
pred. No. 4.2e-138;
3; Mismatches 4;
        Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ጅ
           Chemin I,
                                                                                     RECH MEDICALE
             Komurian-Pradel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
RESULT 6
AAU1407
ID AAU14
XX AAU1
XX AAU1
XX AAU1
DT 21-N
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE
CX ARE

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present sequence represents a mutated Pre-S gene. It is part of the mutant hepatitis B virus (mHVB) of the invention, which has a circular, partially double-stranded genome comprising pre-S, S, C, P and X genes, encoding, respectively, surface antigens, envelope protein (HBsAg), proteins HBeAg and HBcAg, DNA polymerase/reverse transcriptase, and HBsAg. The mutant HBV of the invention are used for induction of HBsAg. The motal or cellular immune responses, or antisense inhibition of viral protein expression. Proteins and nucleic acids derived from mHVB (also related antibodies, vectors, transformed cells and coligonucleotides) are useful for diagnosis (in standard amplification, hybridization or immune-complex forming assays) and for treatment of, or vaccination against, HBV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New mutant of hepatitis B virus, useful for diagnosis, prevention treatment of infection, also related nucleic acids, proteins and antibodies -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 36; Page 92-94; 102pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                           Hepatitis B virus major surface antigen precursor
                                                                                                                                                                                                                                                                                                                                                   21-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAU14097 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                   major
                                                                                                                                                                                                                                         Anti-retroviral; DP178-like; DP107-like; antifusogenic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                          19-JUL-2001
                                                                                                            WO200151673-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         48 GAGAFGLGFTPPHGGLLGWSPQAQGILQTLPUNDPPDASTWRQSGRQPTPLSPPLGNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 GAGAPGIGFTPPHGGLIGWSDQAQGILETLPANPPPASTURQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-441870/47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TSGFLGPLLVLQAGEFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCFLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMOWNSTTFHOTLODPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLSPTVMLSVIMMMYWGPSLYSILSPFLPLLPIFFCCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĊPPTCPGYRWMCLRR#IIFL#ILLLCLI#LLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ĠĹŚPTVWĹŚVIWMWYWĠPŚĹYNIĹRPFĹPĹĹPIFFĊĹŴVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKPLWEWASARPSWLSLLVPFVQWFV
                                                                                                                                                                                                                   surface antigen precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389 AA;
                                                                                                                                                                 B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                 subtype AYW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96.8%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1868; DB 22;
Pred. No. 6.1e-138;
2; Mismatches 4;
                                                                                                                                                                                                                        S; HIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                            antiviral;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245
```

05-JUL-2000; 2000WO-US35727

```
XXXXX
                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention relates to peptides which exhibit anti-retroviral cactivity. The peptides of the invention (AAUI2559-AAUI4009) comprise DP178-like and DP107-like peptides. The DP178 peptide corresponds to amino acids 639-673 of the transmembrane protein gp41 from human corresponds to amino acids 558-595 of gp41 from HIV-1LAI. The invention corresponds to amino acids 558-595 of gp41 from HIV-1LAI. The invention corresponds to amethod of identifying compounds that inhibit the corresponds to a method of identifying compounds that inhibit the corresponds of a test compound, in a reaction mixture containing DP107 or and DP178 peptides. The method is useful for identifying compounds, containing DP107 cand DP178 peptides. The method is useful for identifying compounds, concluding small molecule compounds, which may themselves exhibit concluding small molecule compounds, which may themselves exhibit containing DP107-like/DP107-like peptides are useful to inhibit human and non-human corresponds and peptides are useful to inhibit human and non-human corresponds and peptide sequence from Hepatitis B virus xx subtype AYW major surface antigen precursor S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Simi
Matches 333;
             19-OCT-2001
                                             AAG66932;
                                                                       AAG66932 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                              349
                                                                                                                                                                                            303
                                                                                                                                                                                                                               289
                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Fig 35; 259pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Identifying a compound that inhibits the formation of or disrupts a DP107/DP178 complex, especially compounds with antifusogenic, antiviral or intracellular modulatory activity, by detecting the formation of a DP107/DP178 complex -
                                                                                                                                                                                                                                                                                                                                                              169
                                                                                                                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                                                             123
                                                                                                                                                                                                                                                                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6 GAGAFGLGFTPP-HGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNT-H 63
                                                                                                                                                    WEVGLSPTVWLSVIWMWWWGPSLYSILSPFLPLLPIFFCLWVYI 393
                                                                                                                                                                            WFVGLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFFCLWVXI
                                                                                                                                                                                                                                                                                               PTSCPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPC
                                                                                                                                                                                                                                      RTCTTPAQGTSMYPSCCCTKPSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPPVQ 302
                                                                                                                                                                                                                                                                                                                                                enitsgflgfllvlqagfflltriltipqsldswwtslnflggttvclgqnsqsptsnhs
                                                                                                                                                                                                                                                                                                                                                                     ENITSGELGELLVLQAGFFLLTRILTIFQSLDSWWTSLNFLGGTTVCLGQNSQSETSNHS
                                                                                                                                                                                                                                                                                                                                                                                                                                     PQAMQMNSTTF-HQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALLM 122
                                                                                                                                                                                                                 RTCMTTAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPFVQ
                                                                                                                                                                                                                                                                                 PTŚĆEPTĆPĠYRWYĆLRRFIIFLFILLLCLIFLLVILDYQGWIPVČPLIPGŚŚTTŚTĠPĊ
                                                                                                                                                                                                                                                                                                                                                                                                                  PQAMQWNSTTPIIQTLQDPRVRGLYPPAGGSSSGTVNPVLTTASPLSSIPSRIGDPALNM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAFGLGFTÞÞIIGGLLGWSÞQAQGÍLQTLÞÁNÞÞÞASTNRQSGRQÞTÞLSÞÞLRNTII 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRIMERIS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lackey JW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              393 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0350841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Erickson JB,
                                                                         399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1803.5;
Pred. No. 6.7e
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lawless MK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ό; μς
ό.7e-133;
7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 22; Length 393;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Merutka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ဂ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3; Gaps
                                                                                                                                                                                                                                                                                   288
                                                                                                                                                                                                                                                                                                                  242
                                                                                                                                                                                                                                                                                                                                                  228
                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                    168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ü
```

```
문
                                      S
                                                                       片
                                                                                                  Ś
                                                                                                                                     밁
                                                                                                                                                                 S
                                                                                                                                                                                                 당
                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                           CC human heparitis B virus (HBV) genotype, provisionally named genotype was found with a high prevalence in patients chronically infected with HBV and residing in Burope and the USA. The invention relates to a fully defined sequence of 3248 nucleotides as given in specification, a sequence with 92% identity to the given sequence, or sequence that is degenerate to the mentioned sequences. These polynucleotides are useful for HBV genotyping. The proteins cenceded by the polynucleotides are useful for detecting antibodies in directed against the proteins are useful for detecting antibodies and directed against the proteins are useful for detecting the proteins and antibodies and for detecting HbCAg and HBbAg (precore precursor proteins). They are also useful for preparing a vaccine or medicament for treating sequence alignment of the pressit sequence is provided in an amino acid of the different HBV capactynas.
                                                                                                                                                                                                                                                                                                                          Matches 318;
                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to the complete nucleic acid sequence human hepatitis B virus (HBV) genotype, provisionally named
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel isolated and/or purified hepatitis B virus polypeptide and polynucleotide sequences that are phylogenetically different from genotype A-F molecules, useful for HBV diagnosis, prophylaxis and
                                                                         238
                                                                                                       186
                                                                                                                                     178
                                                                                                                                                                                                  118
                                                                                                                                                                   126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 3; Fig 6; 94pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Stuyver L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-DEC-1999;
07-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (INNO-) INNOGENETICS NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200140279-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus; HBV; preCore; Core; preS1; preS2; HBS; HBX; HBPol;
HBsAg; antiviral; vaccine; genotype G; genotyping; HBcAg; HBeAg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HBV genotype E preS1/preS2/HBsAg
                                                                                                                                                                                                                                99
                                                                                                                                                                                                                                                                58
                                                                                                                                                                                                                                                                                              σ
                                                                                                                                                                                                                                                                                                                                                                                                                    the different HBV genotypes.
MTLAQGTSNEPSCCCSKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFA
                     TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                 CPPTCPGYRMMCLRRFIIFLFILLLCLIFLLVLLDYQQMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                          TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                          GAGAFGIGFTPPHGGLIGWSPQAQGILETLPANPPPAGTNRQSGRQFTPLSPPLRNTHPQ
                                                             CPPICPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                           TSGFLGPLLVLQAGFFLLTKILTIPQSLDSWWTSLNFLGGAPVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                         AMQWNSTTFHQTLQDPRVRGLYPPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                    ĠVĠĀFĠ₽ĠŦŦĖŔĤĠĠĹĹĠŴŚĖQĀQĠMĹĸŤĹŶĀDŦŶŶĀSŦNRQŚĠŔQĔŤĔĨŦĔŶĹŔDŦĤĘQ
                                                                                                                                                                                       AMQWNSTTFHQALQDPRVRGLYFPAGGSSSGTVNPVPTTASLISSIPSRIGDPAPNMESI
                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                        399
                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000WO-EP11526.
                                                                                                                                                                                                                                                                                                                                                                                        A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99EP-0870252,
99US-0169287,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Geyt C,
                                                                                                                                                                                                                                                                                                                  92.4%; Score 1783; DB 22; 93.0%; Pred. No. 2.7e-131; tive 11; Mismatches 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      De Gendt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                   399;
                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                  Gaps
                             305
                                                               297
                                                                                                                           237
                                                                                                                                                          185
                                                                                                                                                                                          177
                                                                                                                                                                                                                      125
                                                                                                                                                                                                                                                      117
                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VBH 1
```

0

ş

306

GLSPTVWLSVIWMMYWGPSLYSILSPFLPLLPIFPCLWVYI

밁

358

GLGPTVMLSVIMMMMYMGPSLYDISTPIPLLEIPIPLUMVYI

```
RESULT 8
AAR39101
ID AAR39
XX AAR39
XX AAR39
XX AAR39
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps

                                                                                                                                                                   밁
                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                 5
                        á
                                                                           밁
                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-JUN-1995;
05-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus; HCV; hepatitis immunisation; vaccine; infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR93801;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR93801 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A new fusion protein comprises a hepatitis B virus (HBV) S gene protein (AA736611) coupled to amino acids 1-69, 1-70 or 1-154 of the hepatitis C virus (HCV) core protein (AA728348).

The nucleic acid has the coding sequence linked to a CMV promoter, RSV enhancer, polyadenylation sequence and opt. the 5'-UTR of HCV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9610997-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nucleic acid encoding hepatitis B and C virus fusion proteins -incomplete hepatitis C virus genome, are useful in vaccines for prevention or treatment of HBV and HCV infections
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1996-209642/21.
N-PSDB; AAT36611.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coney LR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 1; Page 32-34; 53pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (APOL-) APOLLON INC.
(GEHO) GEN HOSPITAL CORP
                             246
                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                              Mac
Local c
312;
                                                                           239
                                                                                                                                                                        179
                                                                                                                                                                                                                 126
                                                                                                                         186
                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                           GAGDFGPGFTPPHGGLLGWSPQAQGILTTVPAAPPPVSTNRQSGRQPTPISPPLRDSHPQ 118
                                                                                                                                                                                                                                                                                                                                                                                  GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                      CPPTCPGYRWMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAPGKFLWEWASARFSWLSLLVPPVQWFV
                                                                                                                                                                     TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                              TSGELGPLLYLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pachuk CJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95US-0467859
94US-0318248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95WO-US13552.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pre S1/pre S2/S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91.0%;
91.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tokushige
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 1756; DB 17;
; Pred. No. 3.5e-129;
11; Mismatches 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B virus; HBV; core protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wakita
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fusion protein; adr-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wands
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       မ္ပ
                                                                                                                                 245
                                                                                                                                                                               238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
ARESULT 9
AAP60792
AAP60792
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX
AAAP60 XX
AAP60 XX
AAP60 XX
AAAP60 XX
AAP60 XX
AAP60 XX
AAP60 XX

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                       ş
                                                                                                                                                                       밁
                                                                                                                                                                                                              Ş
                                       S
                                                                                  맑
  밁
                                                                                                                                                                                                                                                              Query Match 90.8
Best Local Similarity 90.9
Matches 311; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAP60794;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAP60794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Surface antigen; vaccine; huGK-14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-OCT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Adr-type hepatitis B virus SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO8603975-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              adr-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28-DEC-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-DEC-1985;
                                                                                                                                                                                                                                                                                                                                                                                        The sequence allows for the preparation of adr-type hepatitis B surantigens for vaccine, without the use of human blood. The proteins expressed from human hepatoma cell strain huGK-14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADR-type hepatitis-B surface antigen f
culture of human hepatoma cell strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1986-196794/30.
N-PSDB; AAN60714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (NICA-) JAPAN FOUND CANCER (MEIP ) MEIJI MILK PROD CO (GANK-) GAN KENKYU KAI ZH
                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Fig 5; 30pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KOIKE K,
  168
                                           126
                                                                                    108
                                                                                                                              66
                                                                                                                                                                            48
                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLSPTVMLSVIMMMYMGPSLYSILSPFLPLLPIFFCLMVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIPAQGTSMFPSCCCTKPSDGNCTCIPIPSSWAFARFLWEWASVRFSWLSLLVPFVQWFA 358
                                                                                GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSGSPTSNHSPTS
                             TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard; Protein; 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUGANO H,
                                                                                                                                                                                                                                                                                                                                                      389 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84JP-0274592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85WO-JP00733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label= 43K-47K large
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label= 31K-36K intermediate surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         109..389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             389
                                                                                                                                                                                                                                                                                     90.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ODA M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22K-28K surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GET
                                                                                                                                                                                                                                                                 ; Score 1752; DB 7; Pred. No. 7e-129; 12; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KATAYANAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       intermediate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for vaccine prodn. - obtd. by
1 hugk-14 avoiding use of human blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                surface antigen
                                                                                                                                                                                                                                                                                                                 DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SA and large
                                                                                                                                                                                                                                                                          19;
                                                                                                                                                                                                                                                                                                               Length 389;
                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      antigen
                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                      surface
                                                                                                                                                                                       107
                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                                                                                                 may
                                                                                                                                                                                                                                                                                                                                                                                                                                    e
be
                                                                                                                                                                                                                                                                               0
```

```
RESULT 10
AAG66930
AD AAG66
XX AAG66
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX Hepat
XX
                                                                                                                                                                          CC The invention relates to the complete nucleic acid sequence of a new CC G. This genotype was found with a high prevalence in patients CC chronically infected with HBV and residing in Europe and the USA. The CC cinvention relates to a fully defined sequence of 3248 nucleotides as CC given in specification, a sequence with 92% identity to the given CC given in specification, a sequence with 92% identity to the given CC These polynucleotides are useful for HBV genotyping. The proteins CC encoded by the polynucleotides are useful for detecting antibodies in CC encoded by the proteins that bind to the proteins and antibodies in CC directed against the proteins are useful for detecting the proteins CC directed against the proteins are useful for detecting the proteins CC and for detecting HBcAg and HBcAg (precore precursor proteins). They care also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC sequence alignment of the preS1, preS2 and HBsAg open reading frame of the different HBV genotypes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
            Query Match
Best Local Similarity
Matches 311; Conserv
                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example 3; Fig 6; 94pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Novel isolated and/or purified hepatitis B virus polypeptide and polynuclectide sequences that are phylogenetically different from genotype A-F molecules, useful for HBV diagnosis, prophylaxis and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-374785/39.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Stuyver L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-DEC-1999;
07-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (INNO-) INNOGENETICS NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HBV genotype C preS1/preS2/HBsAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-NOV-2000; 2000WO-EP11526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAG66930 standard; Protein; 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLLPGSSTTSTGBCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLSPTVWLSVIWMWYWGPSLYNILSPFLPLLPIFFCLWVYI 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLSPTVWLSVIWMMWYWGPSLYSILSPELDLLDIFECLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIPAQGTSIFPSCCCTKPSDCNCTCIPIPSSWAFARFLWEWASVRFSWLSLLVPFVQWFA 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLMEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  is B virus; HBV; preCore; Core; preS1; preS2; HBS; HBX; antiviral; vaccine; genotype G; genotyping; HBcAg; HBeAg
                                                                                                                                          400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Van Geyt C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                          Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99EP-0870252
99US-0169287
                                                90
                                             . 5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         De Gendt
         Score 1745; DB 22;
Pred. No. 2.6e-128;
1; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347
      Indels
                                                                Length
                                                                400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HBX; HBPol;
   0;
   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
0;
```

```
RESULT 11
AAG66919
ID AAG66919
ID AAG66919
ID AAG66919
ID AAG66919
ID AAG66919
ID AAG66919
ID AAG660
ID I 19-OC
ID HEPAT
IN HEPAT
IN HEPAT
IN HEPAT
IN HEPAT
IN O7-JU
IN O7-JU
IN O7-JU
IN O7-JU
IN O7-JU
IN O7-JU
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
IN O7-DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                      Novel isolated and/or purified hepatitis B virus polypeptide and polynuclectide sequences that are phylogenetically different from genotype A-F molecules, useful for HBV diagnosis, prophylaxis and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-DEC-1999;
07-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-374785/39.
N-PSDB; AAH77562.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stuyver L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-JUN-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-NOV-2000; 2000WO-EP11526.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis B virus; HBV; pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (INNO-) INNOGENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200140279-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HBV HBPol protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAG66919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAG66919 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVWLSVIWMWYWGPSLYNILSPFLPLLPIFFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIPAQGTSMFPSCCCTKPSDGNCTCIPIPSSWAFARPLWEGASVRPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĊPPIĆPĠYRMMĊĹŔŔFIÌPĹFIĹĹĹĊĹĬFĹĹVĹĹDŶQGMĹPVĊPĽĹPGTSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CPPTCPGYRMMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLIFGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMQWNSTTFHQALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSISSRTGDPAPNMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGAFGPGFTPPHGGLLGWSPQAQGVLTTVPVAPPPASTNRQSGRQPTPISPPLRDSHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Van Geyt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99EP-0870252
99US-0169287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Λ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        preCore; Core; preS1; preS2; HBS; HBX; HBPo1;
ne; genotype G; genotyping; HBcAg; HBeAg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     De
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gendt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65
```

The invention relates to the complete nucleic acid sequence of a new human hepatitis B virus (HBV) genotype, provisionally named genotype G. This genotype was found with a high prevalence in patients chronically infected with HBV and residing in Europe and the USA. The invention relates to a fully defined sequence of 3248 nucleotides as given in specification, a sequence with 92% identity to the given gequence, or sequence that is degenerate to the mentioned sequences. These polynucleotides are useful for HBV genotyping. The proteins encoded by the polynucleotides are useful for detecting antibodies in a biological sample. Ligands that bind to the proteins and antibodies

antibodies in and antibodies

Claim 16;

Fig

1; 94pp;

English.

HΒV

```
ព្រះព្រះជន្ម
           RESULT 12
AAPB0416
ID AAPB0
XX AAPB0
AC AAPB0
AC AAPB0
AC AAPB0
XX 12-SE
XX 12-SE
XX Seque
DE Seque
DE Seque
DE Seque
DE Seque
DE Seque
DE Seque
DE Seque
DE PO 12-SE
XX EP288
XX EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP288
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX I EP341
XX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    directed
and for d
are also
HBV infect
HBV genot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Egg white lysozyme; hepatitis B virus (HBV) surface antigen(HBsA9); Saccharomyces cerevisiae AH22R/pGLD LP39-RcT; L protein; M protein; Saccharomyces cerevisiae LP31-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence of adr type (HBsAg) L protein (M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118
Peptide(s) having hepatitis B surface antigenicity - used as vaccine for prevention of hepatitis B virus and in diagnostic kits
                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-SEP-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAP80416
                                                                                                                                                                                                                                                                                                      13-APR-1988;
                                                                                                                                                                                                                                                                                                                                                 26-OCT-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
                                                                                                                            WPI; 1988-301233/43.
                                                                                                                                                                   Fujisawa
                                                                                                                                                                                                                                                            12-OCT-1987;
                                                                                                                                                                                                             (TAKE ) TAKEDA CHEMICAL IND KK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for detecting HBcAg and HBeAg (precore precursor proteins). They also useful for preparing a vaccine or medicament for treating infections. The present sequence is encoded by the genome of genotype G strain PR1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            თ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAFGLGFTPPHCGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLSPTVMLSVIMMMYWGPSLYSILSPFLPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMQWNSTAFHQALQNÞKVRGLYFÞÁGGSSSGIVNÞVÞTIASHÍSSÍFSRÍGDÞÁFNMENÍ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPPTCPGYRMMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1FGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGVPVCPGLNSQSPTSNHSPIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTPAQGNSMYPSCCCTKPSDGNCTCIPIPSSWAFAKYLWEWASVRFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTPAQGTSMYBSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CPPTCPGYRWMCLRRF11FLF1LLLCL1FLLVLLDYQGMLPVCPL1PGSSTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        309;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                    AAN80973.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          etandard;
                                                                                                                                                                   Ķ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         virus.
                                                                                                                                                                      Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A.
                                                                                                                                                                                                                                                          87JP-0256885
                                                                                                                                                                                                                                                                                                      88EP-0303297
                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hepatitis B virus (HBV) protein, S protein).
                                                                                                                                                                      Miyazaki T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1743; DB 22;
Pred. No. 3.7e-128;
L3; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                            infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
RESULT 13
AAR55287
ID AAR55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CC CI introduced into animal cells (CHO cells) they produce HBSAg particles CC introduced into animal cells (CHO cells) they produce HBSAg particles CC containing M and S proteins. The advantage is that peptides having CC HBSAg antigenicity are excreted outside the cells and easily purified. CC Claimed is a eukaryotic cell transformed with the rDNA. Pref. CC RT, LIPS9-RCT or LB31-RCT. Also claimed is recombinant DNA, which CC RCT, LIPS9-RCT or LB31-RCT. Also claimed is recombinant DNA, which CC cell, and is bound to the 5'-terminal of a DNA coding for a peptide CC cell, and is bound to the 5'-terminal of a DNA coding for a peptide CC cell, and is bound to the 5'-terminal of a DNA coding for a peptide CC cell, and is bound to the 5'-terminal of a DNA coding for a peptide CC cell, and is bound to the 5'-terminal of a DNA coding for a peptide CC cell, and is bound to the 5'-terminal of a DNA coding for a peptide of CC cell, and is bound to the 5'-terminal of may be a signal peptide of CC cell, and is bound to the 5'-terminal of may be degraded CC by the protease; the residue from the N-terminal of M protein or a CC cell the 48th arginine residue (preferably the 44-49 peptide) may be contained be residue (preferably the 44-49 peptide) may be contained. Preferable genes include L protein gene (altered) coding for the amino acid sequence 1-383 shown in AAN80973.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Example; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                              Surface antigen; recombinant replicable vaccinia prevention; therapy; epitope; hepatitis B virus.
                                                                                                                                                                             Deduced
                                                                                                                                                                                                                                                                  AAR55287 standard; Protein; 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                             09-JUN-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108 AMQWNSTTFHQALLDPRVRGLYFPAGGSSSGTVNPVPTTASPIS-----GDPAPNMENT
                                                                       WO9412617-A
                                                                                                  Hepatitis B
                                                                                                                                                                                                                                                                                                                                             342
                                                                                                                                                                                                                                                                                                                                                                                                       282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                                                                                                                                                       306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GLSPTVMLSVIMMMYMGPSLYSILSPELPLLPIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                     TIPAQGTSMFPSCCCTKPSDGNCTCIPIPSSWAFARFLWEWASVRFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                      TTPAQGTSMYDSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                             sequence of HBV surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5; 31pp;
                                                                                                       virus
                                                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ÃĂ;
                                                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90.0%; Score 1736; DB 9; 90.6%; Pred. No. 1.2e-127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                  S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 383;
                                                                                                                                                      virus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                    hepatitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                           305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        281
```

۲.

93WO-US11474.

```
RESULT 14
AAY54045
ID AAY54
XX AAY54
XX AAY54
XX AAY54
XX AAY54
XX AMINO
XX HBV;
XW LYAIN
KW LYAIN
KW LYAIN
XX HEPAT
XX HEPAT
XX HEPAT
XX HEPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EXEXEXERXE EXSENDED SONDOWN OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Simi
Matches 305;
                                                                          DNA polymerase; large surfatransactivating X protein; hepatocellular carcinoma.
                                                                                                                                      HBV; HBV surface antigen-'S'-133 Oon strain (Met to Thr);
                           Hepatitis B virus
                                                                                                                                                                                       Amino acid seqeunce of a HBV large surface antigen protein
                                                                                                                                                                                                                                                                                                                                                         AAY54045 standard; Protein;
                                                                                                                                                                                                                                                            27-MAR-2000
                                                                                                                                                                                                                                                                                                             AAY54045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The HBV genome (subtype adw) is contained in plasmid pAM6. The 3' end of the ORF conding for the three surface Ags was manipulated to generate pRO-02 which contains an intact ORF capable of encoding LS, MS and S Ags. The DNA sequences encoding S, MS and LS were subcloned and sequenced. The sequences of the LS are AAQ67970/R55287; the sequences of MS are AAQ67961/R55281 and The sequences of S are AAQ67962/R55282. Changes in nucleotide and deduced AA sequences from the published sequence are believed to result from variability
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Prevention and treatment of hepatitis - using recombinant replicable vaccinia viruses contg. hepatitis B virus surface and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                core antigen nucleotide sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-NOV-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ITBI-) INT BIOTECHNOLOGY LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLSPTVWLSAIWMWYWGPSLYSIVSPFIPLLPIPFCLWVYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLSPTVWLSVIWMMYWGPSLYSILSPFLFLLDIFFCLWVYI 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTPAQGTSMYPSCCCTKPSDGNCTCIPIDSSWAFGKFLWEWASARFSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CPPICPGYRWMCLRRFIIFLFILLLCLIFILVILDYQGMLPVCPLIPGSTTTSTGPCKTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TSGFLGFLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGSPVCLGQNSQSPTSNHSPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AMQWNSTAFHQALQDPRVRGLYFPAGGSSSGTVNPAPNIASHISSISARTGDPVTNMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMOWNSTTFHOTIODERVEGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GVGAPGPGPTPPHGGVLGWSPQAQGILTTVSTIPPPASTNRQSGRQPTPISPPLRDSHPQ 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTPAQGNSMPPSCCCTKPTDGNCTCTPIPSSWAPAKYLWEWASVRPSWLSLLVPFVQWFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ËĠ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               adw subtype.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22; 252pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lewis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92US-0982211.
                                                                                                                                                                                                                                                      entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                89.5%; Score 1727; DB 15;
89.2%; Pred. No. 6.3e-127;
tive 14; Mismatches 23;
                                                                                                                     surface antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Okeefe RW,
                                                                                             hepatitis
                                                                                                                                                                                                                                                                                                                                                            400
                                                                                       n; core protein;
vaccine; HBV ir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ⊗uw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

```
밁
                               Ś
                                                           문
                                                                                S
                                                                                                             밁
                                                                                                                                     S
                                                                                                                                                                밁
                                                                                                                                                                                        á
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                      Matches 308;
                                                                                                                                                                                                                                                                                                                                                      mucleotide sequence was isolated from hepatocellular carcinoma (HCC). The nucleotide sequence encodes four overlapping proteins, which are a DNA polymerase, a large surface antigen, a core protein, and a transactivating X protein. The large surface antigen differs from the wild type sequence in that it contains a Thr at position 133 of the wild type sequence instead of a Met. The proteins are used to produce antibodies. The proteins, polymucleotide and antibodies can be used for the contains the novel HBV strain. The HBV polypeptides can also be used to identify compounds for treating or preventing HBV infection or hepatitular carrinoma.
                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                  hepatocellular carcinoma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present sequence is encoded by the genome of an isolated strain of Hepatitis B virus designated human Hepatitis B virus (HBV) surface antigen-'S'-133 Con strain (Met to Thr). The viral genome is deposited as ECCC accession numbers P97121501, P97121502 and P97121503. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 23; Page 39-40; 68pp; English
                                                             239
                                                                                      186
                                                                                                               179
                                                                                                                                      126
                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New isolated hepatitis B virus strain, hepatitis infection -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oon CJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note= "encoded by AGC" Misc-difference 174..400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9966048-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GOVE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                           99
                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                             6
                                                   CPPTCPGYRMMCLRRFIIFLFILLCLIFLLVLLDYQGMLPVCPLLPGTSTTSTGPCRTC
                                                                                                                                                                                                          GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                TTPAQGTSMYPSCCCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVDFVQWPV
                                                                                                                     TSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTVCLGQNSQSFTSNHSPTS
TTPAQGNSTFPSCCCTKPSDGNCTCIPIPSSWAFARPLWEWASVRFSWLSLLVPFVQWFV
                                                                                                   TSGFLGPLLVLQAGFFSLTRILTIPQSLDSWWTSLNFLGGAPTCPGQNSQSPTSNHSPTS
                                                                                                                                                        ATOWNSTTFHOALLDPRVRGLYFPAGGSSSGTVNPVPTTASPISSIFSRTGDPAPNMENT
                                                                                                                                                                         AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALNMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000-106104/09.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GOVERNMENT REPUBLIC SINGAPORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lim GK,
                                                                                                                                                                                                                                                                                                                         400 AA;
                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98WO-SG00046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98WO-SG00046.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         298..320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zhao Y,
                                                                                                                                                                                                                                                                89.2%; Score 1721; DB 21; 90.1%; Pred. No. 1.9e-126; tive 10; Mismatches 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               these residues are claim 23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    these residues are claim 29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               useful for, e.g. treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         specifically claimed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               specifically
                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                           400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               claimed
                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                             118
                          305
                                                    298
                                                                             245
                                                                                                                                 185
                                                                                                      238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of,
                                                                                                                                                                                                                                                                0
```

S

306

GLSPTVWLSVIWMWYWGPSLYSILSPFLPLLPIFFCLWVYI

밁

359

400

```
RESULT 15
AAR10851
                                                                                                                               ş
                                      밁
                                                          8
                                                                                   Matches
                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Key
Region
                                                                                                                                                   The modified L protein has the Gly 13 amino acid in the pres1 region of the wild-type sequence deleted. The deletion results in the synthesis of a non-myristilated L protein. (The first amino of the ad sequence are not given). The modified product may be used alone or in a composite particle comprising at least two polypeptides corresp. to all or part of a protein having the biological activity of one of the hepatitis B surface antigens. The composite particles are useful for preparing improved hepatitis B vaccines or for treating of HBV. See also AAQ10677-79.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vaccines.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus; large surface protein; L protein; myristilation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Modified hepatitis B virus large protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR10851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR10851 standard; Protein; 388 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-FEB-1991
                                                                                                                                                                                                                                                                                                      Modified hepatitis B virus large surface protein - has amino acid sequence encoding L protein used in vaccine for treating or preventing hepatitis B without effects
                                                                                                                                                                                                                                                                                                                                                                                      Comberbach
Jacobs E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-JUL-1990;
                                                                                                                                                                                                                                                                                                                                                    WPI; 1991-059585/09.
N-PSDB; AAQ10678.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-AUG-1989;
                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                 Disclosure; Page 4-7; 79pp; English.
*.66 AMQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVPTTVSPISSIFSRIGDPALMMENI 125
                                                                                                                                                                                                                                                                                                                                                                                                                        (SMIK ) SMITHKLINE BIOLOGIC.
                                                                                  Local Similarity 88.3
                                      47
                                                           6
                                     GAGAFGLGFTPPHGGLLGWSPQAQGILETLPANPPPPASTNRQSGRQPTPLSPPLRNTHPQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B virus.
                                                                                                                                                                                                                                                                                                                                                                                      M, Harford N,
Hollenberg CP,
                                                                                                                                388 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                               89US-0389184.
89US-0385342.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90EP-0307900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108..162
/label= pre-S2
163..388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /label=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label= pre-S1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                             88.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S-region
                                                                                                                                                                                                                                                                                                                                                                                       Cabezon T,
Janowicz ZA,
                                                                                  ; Score 1713; DB 12;
; Pred. No. 7.8e-126;
15; Mismatches 25;
                                                                                                                                                                                                                                                                                                                                                                                          Rutgers A, Vos
, Merckelberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ξ
                                                                                       Indele
                                                                                                           Length 388;
                                                                                                                                                                                                                                                                                                                                                                                                      Voet P;
                                                                                      0;
                                                                                       Gaps
                                                                                       0
```

```
á
                                                                                                                               밁
                                               δ
                                                                 밁
                                                                              ঠ
                                                                                                 よ
               á
                                 밁
                                                                                                   167
                                                                                   186
                                                                                                                                   107 AMQWNSTAFHQALQDPRVRGLYFPAGGSSSGTVNPAPNIASHISSSSARTGDPVTNMENI 166
347
                 306
                                  287
                                                  246
                                                                   227
                                                                                                                    126
                                                                                                  CPPTCPGYRWMCLRRFIIFLFILLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCRTC
GLSPTVMLSVIMMMYWGPSLYSILSPFLFLLPIFFCLMVYI 347
                                           TTPAQGTSMYDSCCCTKPSDGNCTCIDIPSSWAFGKFLWEWASARPSWLSLLVPFVQWFV
                                  TTPAQGNSMFPSCCCTKPTDGNCTCIPIPSSWAFAKYLWEWASVRFSWLSLLVPFVQWFV
                                                      305
                                                                       286
                                                                                       245
                                                                                                        226
                                                                                                                        185
```

Search completed: February 3, 2003, 09:23:50
Job time : 57.6167 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum DB :
Maximum DB :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
      1048.5
1038.5
1037.5
1037.5
1037.5
1035.5
1035.5
1034.5
1032.5
1032.5
1032.5
                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein search, using sw model
                                                                                                                                                                                                                                                                                                 SPTREMBL 21:*

1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_fungi:*
5: sp_invertebrate
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_blage:*
10: sp_plant:*
11: sp_virus:*
12: sp_virus:*
13: sp_vertebrate:
                                                                                                                                                                       Query
Match
               US-09-890-752A-2
1148
1 MPLSSIFSRIGDFTVQASKL.....RRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         February 3, 2003, 09:21:12; Search time 28.8415 Seconds (without alignments)
1535.988 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                       sp_mammal:*
sp_mhc:*
sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                     sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
                                                                                                                                                                                                                                                             sp_archeap:*
                                                                                                                                                                      Length DB
                                                                                                                                                                                                                                                                                                                                                                               invertebrate:*
     Ĥ
    011884
Q89656
Q68016
Q67876
Q67877
Q68029
Q68029
Q68068
Q67984
Q68070
Q915Y7
Q915Y7
Q915Y7
Q915Y7
Q915Y7
                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     671580
O11884 hepatitis k

Q89656 hepatitis k

Q68016 hepatitis k

Q68016 hepatitis k

Q67876 hepatitis k

Q68025 hepatitis k

Q68025 hepatitis k

Q68025 hepatitis k

Q68026 hepatitis k

Q68032 hepatitis k

Q68032 hepatitis k

Q68034 hepatitis k

Q68036 hepatitis k

Q68046 hepatitis k

Q68056 hepatitis k

Q91717 hepatitis k

Q91717 hepatitis k

Q91787 hepatitis k

Q91787 hepatitis k

Q91787 hepatitis k

Q68051 hepatitis k
                                                                                                                                                                   Description
 RESULT
011884
```

ű	4,1	ü	2	41	40	39	8	37	36	G	34	Ü	32	μ	30	29	82	27	26	25	24	23	22	21	20	5	8	17	
	1026.5											_	_				_	_	·	w	w	w	w	_	_	•	·		
	89.4		۳	۳	۳	۳	Ψ	۳	٠	٠	۰	۰	φ	9	ø	9	φ	9	9	9	9	9	9	9	9	9	9	9	
212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Q91T04	Q910L8	Q917J7	Q91SY3	Q91SY5	94S16Q	845160	Q91SZ0	Q91SZ6	Q91T03	Q910L4	Q91SX8	089446	Q68030	Q917J5	8HMO60	Q96845	Q68075	010890	0910N8	E00160	091SY4	091821	091825	268014	Q68012	Q67980	Q91SX4	Q91T01	
Q91t04 hepati	018 hepat	717 hepat	ava henet	evs henat	nya hanat	RV8 henat	szo hepat	nadori yara	told here	014 hepat	eded 848	1446 hope	ngo hena	715 hena	מקטול מלווו	SB45 hana	3075 hena	hena	long hepa	1007 hepa	leva hene	levi hene	last hepa	SAO14 here	68012 hepa	67980 hena	ex4 hena	91t01 hena	
itis b	בי ו			1 6			-					1 0	. ,		1 0	1 (1			; ;				7 (- 6	-	† (<u>.</u> .	

ALIGNMENTS

۶۶ 	g Q	da da	Qy db	1	SQ SQ	ק ק	RI	RA RA	R O C	SO	7000	ID AC
	133 LWPHISCLTFGRETVIEYLVSFGVWIRTDPAYRDPNAPILSTLPETTVVRRGGSPRRRT 192	73 EHCSPHHTALRQAILCWGELWTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132	13 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72	<pre>Query Match 91.3%; Score 1048.5; DB 12; Length 212; Best Local Similarity 97.5%; Pred. No. 2.5e-98; Matches 198; Conservative 0; Mismatches 0; Indels 5; Gaps 1;</pre>		ThterDro: IPR02006: Henaritic Core		SEQUENCE FROM N.A. Rao B.S., Casey J.L., Rinaudo J.S., Korba B.R.,		Hepatitis B virus.		011884 1 011884;

밁

190

212

۲,

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q89656;
Q89656;
Q1-NOV-1996
Q1-NOV-1996
Q1-UUN-2002
Core antigen
PREC.
                                   Heparchicay 0:00-0(0).

EMBL; X85290; CAA59609-1; --

EMBL; X85290; CAA59631.1; --

EMBL; X85313; CAA59659-1; --

EMBL; X85283; CAA59659-1; --

EMBL; X85283; CAA59593-1; --

EMBL; X85286; CAA59654-1; --

EMBL; X85312; CAA59657-1; --

EMBL; X85312; CAA59657-1; --

EMBL; AJ131956; CAA10538-1; --

EMBL; AJ34117; CAC87011-1; --

EMBL; AJ34117; CAC87011-1; --

EMBL; AJ34117; CAC87011-1; --

EMBL; AJ34117; CAC87011-1; --

EMBL; AJ34117; CAC87011-1; --

EMBL; AJ34117; CAC87011-1; --

EMBL; AJ344117; CAC87011-1; --

EMBL; AJ34518-1; --

EMBL; AJ34518-1; --

EMBL; AJ34518-1; --

EMBL; AJ34518-1; --

EMBL; AJ34518-1; --

EMBL; AJ34518-1; --

EMBL; AJ34518-1; --

EMBL; AJ3318-1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plucienniczak A.,
Submitted (AUG-1994)
[3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J. Med.
[6]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN=AYW4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Petzold D.R., Tautz B., Wolf F., Drescher J.; "Infection chains and evolution rates of Hepatitis transplant recipients infected nosocommially."; J. Med. Virol. 0:0-0(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
Borisova G.P., Pumpen P.P., Bychko V.V., Pushko P.M., I
Borisova G.P., Pumpen E.Y., Tsibinogin V.V., Kukain R.A.;
Dishler A.V., Gren E.Y., Tsibinogin V.V., Kukain R.A.;
Dokl. Biochem. 279:386-390(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Galibert F., Mandart E., Fit "Nucleotide sequence of the cloned in E. coli.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. MEDLINE=81012091; PubMed=399327;
                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nature 281:646-650(1979).
[4]
                                                                                                                                                                                                                                                                                   Jeantet D., Chemin I., Mandrand B., 2
"Characterization of two Hepatitis B
Hepatitis B surface antigen-negative
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Petzold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                Submitted (AUG-2001)
                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
⊠
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mazzoleni A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MAR-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (JAN-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (TrEMBLrel. 01, (TrEMBLrel. 01, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Precore protein).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ő
                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
.
     90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fitoussi F.,
the hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Porru A., Balestrieri A.;
ne EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
       Score 1040.5;
                                           D3016A4E8B05A1B8 CRC64;
                                                                                                                                                                                                                                                                                       Zoulim F., Trepo C., Kay A.; B virus populations isolated a patient.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tiollais
B virus g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 databases
                                                                                                                                                                                                                                                                                                                                                                                        databases
         12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Charnay
           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ń
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Þ
           212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Y.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ayw)
                                                                                                                                                                                                                                                                                                                   from
```

```
RESULT COOK OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
   RESULT
Q67876
AC Q0
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 00
DT 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q68016;
Q68016;
01-NOV-1996
Q67876 PRELIMII
Q67876;
Q1-NOV-1996 (TIEMBL
Q1-NOV-1996 (TIEMBL
Q1-DEC-2001 (TIEMBL
PIE C/C ORF
Hepatitis B virus
Viruses; Retroid vi
Viruses; Retroid vi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lai M.E., Mazzoleni A.P., Porru A., Submitted (MAR-1995) to the EMBL/Gen EMBL; X85288; CAA59604.1; -
InterPro; IPR002006; Hepatitis_core. Pfam; PF00906; Hepatitis_core; 1.
SEQUENCE 212 AA; 24316 MW; D1531.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus.
Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1996 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pre-c/core protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRE-C/CORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                                                                                                                                                                                                                                                          190
                                                                                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73
                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LWFHISCLTFGRETVIEYLVSFGVWIRTPDAYRPDNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BHCSPHHTALROAILCWGELMTLATWVGVNLEDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSOSPRRRRSOSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            197;
                                                                                                                                                                                                                                                                                                                                                                                                                            PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHCSPHHTALROAILCWGELMTLATWVGVNLEDP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTVQASKLCLGWLWGNDIDPYKBFGATVBLLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                       (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                              PRELIMINARY;
                                       viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19,
                                                                                                                             01,
19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Porru A., Balestrieri A.;
1e EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepadnaviridae;
                                       Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 1.6e-97;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
                                                                                                                          Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1038.5; DB 12; Length Pred. No. 2.6e-97;
                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                                                                                                                                                    215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D1531ABF1B234208 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212
                                                                                                                                                                                                                                                       212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                    ጀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASRDLVVSYVNTNMGLKFRQI
                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ູ້
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           189
```

```
RESULT

Q68020
ID 026
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC Q6
AC
     용
                                             S
                                                                                                 밁
                                                                                                                                  ঠ
                                                                                                                                                                                         밁
                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SO DR RT RAP
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q68020;
Q68020;
01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lai M.E., Mazzoleni A.P., Porru A., Submitted (MAR-1995) to the EMBL/Gen EMBL, X85291; CAA59611.1; -. InterPro; IPR002006; Hepatitis core. Pfam; PF00906; Hepatitis core; 1. SEQUENCE 212 AA; 24336 MW; 63006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis B virus.
Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRE-C/CORE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X65258; CAA46354.1;
InterPro; IPR002006; Hepatitis core.
Pfam; PF00906; Hepatitis core; 1.
SEQUENCE 212 AA; 24348 MW; 6E91C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lai M.E., Mazzoleni A.P., Balestrieri A., Melis A., Porru A., "Sequence analysis of HBV genomes isolated from patients with negative chronic liver disease.", Submitted (MAR-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [1]
SEQUENCE FROM N.A.
Lai M.E., Mazzoler
     190
                                                  193
                                                                                                 130
                                                                                                                                              133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                              75
                                                                                                                                                                                                                                        73
                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                        ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                               EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                                                                                                                            PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP
PSPRRRRSOSPRRRRSOSRESOC
                                                                                       LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                        LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                           EHCSPHHTALROAILCWGDLMTLATWVGVNLEDP
                                                                                                                                                                                                                                                                              PTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWFHISCLTFGRETVIEYLVAFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNNGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP 72
                                                                                                                                                                                                                                                                                                                                                                                     196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EHCSPHHTALROAILCWGELMTLATWVGVNLEDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                         90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Porru A., Balestrieri A.;
ne EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1037.5;
Pred. No. 3.3e.
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                           Score 1037.5; DB 12; Length Pred. No. 3.3e-97; 1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
212
                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63006A4E8B04A1B8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6E91CC7D068EB573 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .3e-97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 12; Length
                                                                                                                                                                                      -ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ASRDLVVSYVNINMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                             212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212;
                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HBsAg
                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                             ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1,
```

```
RESULT OR SESSULT OR S
            밁
                                                S
                                                                                                       문
                                                                                                                                             Ş
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q89597;
Q89597;
01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

SPECIES-Hepatitis B virus; STRAIN=143-FAM G;

Zampino R., Lobello S., Chiaramonte M., Venturi-Pasini C.,

Thursz M., Karayiannis P.;

Intra-familial transmission of Hepatitis B virus in Italy:
                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (FEB-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; X72702; CAA51257.1; -.
EMBL; X80925; CAA56887.1; -.
EMBL; AF419525; AAL15953.1; -.
EMBL; AF419525; AAL15953.1; -.
EMBL; AF350127; AAK57244.1; -.
EMBL; AF350127; AAK57322.1; -.
EMBL; AF35005; AAK57322.1; -.
InterPro; IPR002006; Hepatitis_core.
Pfam; PF00906; Hepatitis_core; 1.
CHAIN 30 212 CORE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequen
01-DEC-2001 (TrEMBLrel. 19, Last annota
HBCAG (PRE-CORE protein) (PRECORE/core
Hepatitis B virus (subtype ayw), and
Hepatitis B virus.

Viruses; Retroid viruses; Hepadnavirida
                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dumpis U., Mendy M., Karayiannis P., Prevalence of HBV core promoter/precore/core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Phylogenetic sequence analysis and amino acid variation of the core gene.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPECIES=Hepatitis B virus (subtype ayw); STRAIN=AYW; Karayiannis P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.

SPECIES=Hepatitis B virus (subtype ayw);
MEDLINE=94079539; PubMed=8257295;
Preisler-Adams S., Schlayer M.J., Peters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPECIES=Hepatitis B virus; STRAIN=GAM1119F29,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (SEP-1995) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (DEC-1995) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SPECIES=Hepatitis B virus (subtype ayw);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Sequence analysis of hepatitis B virus DNA in negative infection.";
          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Karayiannis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rasenack J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=10418, 10407;
                                                                                                                                                     73
                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                    ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatol. 0:0-0(2002).
                                                                                                                           EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRSPRRRT
                                                                                            EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                              PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP
                                                                                                                                                                                                                                  PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                   196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    carriers.";
                                                                                                                                                                                                                                                                                                                                                                                                    212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ש
                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133:385-396 (1993)
                                                                                                                                                                                                                                                                                                                                                                                                    Α
Α.
                                                                                                                                                                                                                                                                                                                                                                                                    24336 MW;
                                                                                                                                                                                                                                                                                                                     90.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                             ; Score 1037.5; pred. No. 3.3e
                                                                                                                                                                                                                                                                                                                                                                                             CORE PROTEIN.
; 1861B13E8B047AC8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peters T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212
                                                                                                                                                                                                                                                                                                                       5; DB 12; Length .3e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=AYW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN=SUB-TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hettler F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mutations in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AND GAM1821F217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     immunologically
                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gerok W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gambian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dumpis U.,
                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                             Gaps
  189
                                                192
                                                                                                 129
                                                                                                                                                132
                                                                                                                                                                                                 74
                                                                                                                                                                                                                                               72
                                                                                                                                                                                                                                                                                             ۲,
```

음 성

193 190

PSPRRRRSQSPRRRRSQSREPQC

212

215

```
RESULT

ID 8025

ID 8025

ID 8025

ID 8025

ID 902

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID 102

ID
                                                                                                                                                                 RESULT
ORBOGE
ID 008068
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
AC 060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             皮
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ol-NOV-1996 (TrEMBLrel 01, C
01-NOV-1996 (TrEMBLrel 01, La
01-DEC-2001 (TrEMBLrel 19, La
Pre-c/core protein
PRE-c/CORE
                      Query Match
Best Local S
Matches 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q68068 PRELIMINARY;
Q680681;
01-NOV-1996 (TrEMBLrel. C
01-NOV-1996 (TrEMBLrel. C
01-DEC-2001 (TrEMBLrel. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q68025
Q68025;
Q68025;
01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lai M.E., Mazzoleni A.P., Porru A., Balestrieri A.;
Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.
EMBLJ, 185293; CAA59616.1; -.
Interpro, IPR002006; Hepatitis core.
Pfam; PF00906; Hepatitis core; 1.
SEQUENCE 212 AA; 24363 MW; 6940D04E90A410C3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                             Lai M.E., Mazzoleni A.P., Porru A., Balestrieri A.;
Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.
EMBL; X85315; CAA59664.1;
InterPro; IPR002006; Hepatitis core.
Pfam; PF00906; Hepatitis core; 1.
SEQUENCE 212 AA; 24366 MW; CEABDD4E8B11E5E8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus.
Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pre-c/
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRE-C/CORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IJ
                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHCSPHHTALRQAILCWGELMTLATWYGVNLEDP----ASRDLVVSYVNTNMGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
       196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         core protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90.24;
                                                          90.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01,
19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepadnaviridae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1035.5;
Pred. No. 5.3e.
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                         .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       215
                                                              Score 1035.5; DB 12; Length 212; Pred. No. 5.3e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 12; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                 Indele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212;
5.
. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ت.
د.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۲
```

```
RESULT
Q67984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                          RESULT 10
Q68032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                      S
                                                                                                                                                                                                            문
                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                               片
                                                                                                                                                                                                                                                                                                                Ş
 Matches
                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996
01-NOV-1996
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q67984
                                                                                                                                                                                                                                                                                                                                                                            Lai M.E., Mazzoleni A.D., Porru A., Balestrieri A.; Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases. EMBL; X85256; CAA59519.1; InterPro; IPR002006; Hepatitis core. Pfam; PF00906; Hepatitis core; 1. SEQUENCE 212 AA; 24322 NW; 629E0B298B13D0D1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis B virus.
Viruses; Retroid viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRE-C/CORE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q67984;
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                              PRE-C/CORE.
Hepatitis B virus.
Viruses; Retroid viruses;
                                                                       Q68032;
01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 01,
01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=10407,
            NCBI_TaxID=10407;
                                                              Pre-c/core protein.
                                                                                                                068032
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133
                                                                                                                                                                                                             130
                                                                                                                                                                                                                                  133
                                                                                                                                                                     190
                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                     75
                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                            PSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWFHICCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LMFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGR8FRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EHCSPHHTALRQAILCWGBLMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                     EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                BHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                              PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLSTASALYREALESP
                                                                                                                                                                                                                                                                                                          PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESF
                                                                                                                                                                   PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                        196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G (TrEMBLrel.
G (TrEMBLrel.
L (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                90.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepadnaviridae,
                               Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                      Score 1034.5; DB 12;
Pred. No. 6.7e-97;
Pred. No. 6.7e-97;
                                                                         Last sequence update)
                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212
                                                                                                                                                                                        215
                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212
                                                                                                                  212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Orthohepadnavirus
                                Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                            DB 12; Length
                                                                         update)
                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                              212;
                                                                                                                                                                                                                                                                                                                                          ū
                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                 189
                                                                                                                                                                                                                                     192
                                                                                                                                                                                                                                                          129
                                                                                                                                                                                                                                                                             132
                                                                                                                                                                                                                                                                                                  74
```

۲.

```
RESULT 12
Q91SY7
ID Q91SY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT

ORDER

ORDER

AC

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDER

ORDE
                                                                                                            밁
                                                                                                                                              र्
                                                                                                                                                                                          밁
                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                 皮
                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SABBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 196;
    Q91SY7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002006; Hepatitis core.
Pfam; PP00906; Hepatitis core; 1
SEQUENCE 212 AA; 24376 MW; D3017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
Lai M.B., Mazzoleni A.P., Porru A., Balestrieri A.;
Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.
EMBL; X85316; CAA59666.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis B virus.
Viruses; Retroid viruses;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q68070;
01-NOV-1996 (TrEMBLrel.
01-NOV-1996 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lai M.E., Mazzoleni A.P., Porru A., Balestrieri A.; Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases. EMBL; X85296; CAA595622.1; ... InterPro; IPRO02006; Hepatitts core. Pfam; PP00906; Hepatitis core; 1. PEGUIENCE 212 AA; 24308 MW; E28972C78B1604FF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pre-c/core protein.
PRE-C/CORE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q68070
                                                                                                            190
                                                                                                                                                    193
                                                                                                                                                                                              130
                                                                                                                                                                                                                                    133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130
                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                         13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                      PSPRRRRSOSPRRRRSOSRESOC
                                                                                                                                PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                               WFHISCLTEGRETVIEYLVSFGVWIRTPPAYRPPNAPILLTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                     LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                       EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                   EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP---
                                                                                                                                                                                                                                                                                                                                                                            PTVQASKLCLGWLWGWDIDPYKEPGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                 PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTAGALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSPRRRRSOSPRRRRSOSRESOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPHRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDAGRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                al Similarity
195; Conserv
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90.1%;
96.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              90.1%;
96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01,
19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Score 1034.5; ; Pred. No. 6.7e. 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                      .212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1034.5;
Pred. No. 6.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        D30173662996A1B8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                            ,.7e-97;
2;
ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5; DB 12; Length .7e-97;
                                                                                                                                                                                                                                                                 -- ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 12; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212;
                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                 189
                                                                                                                                                                                                                                                                 129
                                                                                                                                                                                                                                                                                                                                                   74
                                                                                                                                                                                                                                                                                                                                                                                           72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                   ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
```

```
RESULT
Q91717
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                    δ
     Query Match
Best Local Sim:
Matches 195;
                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                Q91717; PRELIMINARY;
Q91717;
01-DEC-2001 (TrEMBLrel. 1
01-DEC-2001 (TrEMBLrel. 1
01-MAR-2002 (TrEMBLrel. 2
                                              J. Hepatol. 0:0-0(2002).

EMBL; AF419526; AAL15954.1; -.

InterPro; IPR002006; Hepatitis core.

Pfam; PF00906; Hepatitis_core; 1.

CHAIN

30

212

CORE PROTEIN.

CHAIN

30

212

CORE PROTEIN.

SEQUENCE 212 AA; 24421 MW; B76FFE275B047AD1 CRC64;
                                                                                                                             STRAIN=144-FAM G;
Zampino R., Lobello S., Chiaran
Thursz M., Karayiannis P.;
Thura-familial transmission of
Phylogenetic sequence analysis
gene.";
                                                                                                                                                                                                                  Pre-core protein.
Hepatitis B virus.
Viruses; Retroid viruses;
NCBI TaxID=10407;
                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                chronic carriers.";

Submitted (FEB-2001) to the EMBL/GenI
EMBL; AF35015; AAK57272.1; -

InterPro; IPR002006; Hepatitis core.

Pfam; PF00906; Hepatitis core; 1.

SEQUENCE 212 AA; 24363 MW; 27E961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91SY7;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
Precore/core protein.
Hepatitis B virus.
Viruses, Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=GAM1211;
Dumpis U., Mendy M., Kar
"Prevalence of HBV core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                            190 PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                      193
                                                                                                                                                                                                                                                                                                                                                                                                                             130
                                                                                                                                                                                                                                                                                                                                                                                                                                    133 LWFHISCLTFGRETVIEYLVSEGVWIRTEPAYRPPNAPILSTLDETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                           PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                    EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHCSPHITALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      195;
                Similarity
     Conservative
                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
             89.9%;
96.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           89.9%;
96.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Karayiannis P.;
ore promoter/precore/core
                                                                                                                                                                Chiaramonte M., Venturi-Pasini C., Dumpis U.,
                                                                                                                                                                                                                                                                 19,
20,
                                                                                                                                                                                                                              Hepadnaviridae;
Score 1032.5; DB 12
Pred. No. 1.1e-96;
1; Mismatches 2;
                                                                                                                                                                                                                                                                Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                          Created)
                                                                                                                             of Hepatitis B virus in Ita
is and amino acid variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1032.5;
Pred. No. 1.1e
                                                                                                                                                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27E96F6D069BC35A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                 ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .1e-96;
                                                                                                                                                                                                                             Orthohepadnavirus
                       DB 12; Length
                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 12; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mutations
 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                  O.F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                                                                  the
 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gambian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ហ
--
 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲,
```

Ś

13 PTVQASKL/CLGWLWGMDIDPYKBFGATVELLSFLPSDFFDSVRDLIDTASALYREALBSP

1;

```
RESULT 14
Q910K2
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Chronic carriers.",

Submitted (FEB-2001) to the EW Submitted (FEB-2001) to the EW EMBL; AF350218; AAK57335.1; ---

EMBL; AF350218; AAK57216.1; --

EMBL; AF350100; AAK57219.1; --

EMBL; AF350100; AAK57220.1; --

EMBL; AF350100; AAK57233.1; --

EMBL; AF350106; AAK57233.1; --

EMBL; AF350116; AAK57233.1; --

EMBL; AF350116; AAK57233.1; --

EMBL; AF350119; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF350120; AAK57236.1; --

EMBL; AF35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q910K2
Q910K2;
01-DEC-2001
01-DEC-2001
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Precore/core protein.
Hepatitis B virus.
Viruses; Retroid viruses; Hepadnaviridae;
NCBI_TaxID=10407;
                                                                                                                                                                                                                                           EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=VARIOUS STRAINS;
Dumpis U., Mendy M., Ka
"Prevalence of HBV core
(TEM3
(TEM3
(TEM3
(TEM3
                                                                                              EMBL;
                                                                                                                              EMBL;
EMBL;
EMBL;
                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWFHISCLTPGRETVIEYLVSFGVWIRTPDAYRPDNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHCSPHHTRLRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PSPRRRRSQSPRRRRSQSRESQC
AF350125;

AF350126;

AF350126;

AF350130;

AF350130;

AF350131;

AF350141;

AF350147;

AF350148;

AF350148;

AF350150;

AF350150;

AF350150;

AF350150;

AF350150;

AF350163;

AF350163;

AF350163;

AF350163;

AF350163;

AF350163;

AF350163;

AF350163;

AF350170;

AF3501710;

AF3501717;

AF3501717;

AF3501717;
                                                                                                                                                                                                                                                                                                                                                                                                                     AF350122;
AF350124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                     AAK57219 1

AAK57220 1

AAK57225 1

AAK57225 1

AAK57235 1

AAK57236 1

AAK57236 1

AAK57237 1

AAK57237 1

AAK57238 1

AAK57241 1

AAK57241 1

AAK57245 1

AAK57245 1

AAK57245 1

AAK57245 1
AAK57265.1

AAK57267.1

AAK57267.1

AAK57269.1

AAK57269.1

AAK57274.1

AAK57279.1

AAK57279.1

AAK57280.1

AAK57280.1

AAK57280.1

AAK57280.1

AAK57280.1

AAK57280.1

AAK57280.1
                                                                                                                                                                                                                                                                                         AAK57249.1;
AAK57250.1;
AAK57255.1;
AAK57257.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAK57216.1; -.
AAK57217.1; -.
                                                                                                                                                                                                                                           AAK57260.1;
AAK57264.1;
                                                                                                                                                                                                                                                                           AAK57258.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Karayiannis P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19,
19,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoter/precore/core mutations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gambian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74
```

```
RESULT 15
Q67872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
   AC DE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

Mazzoleni A.P., Balestrieri A., Melis

"Sequence analysis of HBV genomes isolated from

"Sequence chronic liver disease.";

submitted (MAR-1992) to the EMBL/GenBank/DDBJ da

EMBL; X65257; CAA46350.1; -.

InterPro; IPR002006; Hepatitis core.

Pfam; PF00906; Hepatitis core; 1.

SEQUENCE 212 AA; 24348 MW; 1861AB0DA21E49E1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                         Q67872;
Q67872;
Q1-NOV-1996
Q1-NOV-1996
Q1-DEC-2001
Q1-DEC-2001
Pre C/C ORF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                 Hepatitis B virus.
Viruses; Retroid viruses;
NCBI TaxID=10407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         interPro; IFRU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133
                                                                                                                                                                                                                                                                                                                                                                                                                                     190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ## AF350178; AAK57295.1; AF350181; AAK57308.1; AF350185; AAK57302.1; AF350186; AAK57302.1; AF350189; AAK57307.1; AF350199; AAK57307.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350199; AAK57311.1; AF350210; AAK57317.1; AF350210; AAK57317.1; AF350210; AAK57311.1; AF350210; AAK57311.1; AF350210; AAK57311.1; AF350210; AAK57311.1; AF350210; AAK57311.1; AF350210; AAK57311.1; AF350210; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AF350211; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; AAK57311.1; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHCSPHHTALRQAILCWGELMTLATWVGVNLEDDEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSRBPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPENTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212
                                                                                                                                                                                                                                                                 (TrEMBLrel. (TrEMBLrel. (TrEMBLrel. )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89.9%;
ilarity 96.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis core; AA; 24349 MW;
                                                                                                                                                                                                                                                                   19,
                                                                                                                                                                                                              Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Score 1032.5; pred. No. 1.1e 1; Mismatches
                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                     212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          215
                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9A61B13E8B10C583 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    core.
       1861AB0DA21E49E1 CRC64;
                                                                                                                                                                                                                                                                                                                                               212
                                                                                                                                                                                                                                                                                                                                               ₹
                                                                                                                    Melis A., Porru
d from patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 12;
                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>ب</u>
                                                                                   databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                          Porru
                                                                                                                          with
                                                                                                                                          A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>ت</u>
                                                                                                                        HBsAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1;
```

Query Match Best Local S Matches 195

Similarity

89.9%;

Score 1031.5; DB 1; Pred. No. 1.3e-96; 1; Mismatches 2;

DB 12; Length

212;

Indels

<u>υ</u>

Gaps

۳.

195;

Conservative

1.

Sea Job	먕	Ś	뭥	δ	ઠ	Ś	D	δ
ti								
ne :	190	193	130	133	75	73	15	13
Search completed: February 3, 2003, 09:25:44 Job time : 30.1748 secs	190 PSPRRRRSQSPRRRRSQSRESQC 212	193 PSPRRRRSQSPRRRRSQSREPQC 215	130 LWFHISCLIFGRETVIBYLVSFGVWIRTPPAYRPPNAPILGTLPETTVVRRRGRSPRRT 189	133 LWEHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT 192	75 EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPASRDLVVSYVNTNMGLKFRQL 129	73 EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132	15 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP 74	13 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72

		•

OM protein - protein search, using sw model GenCore version 5.1.3 Compugen Ltd.

Run on: February 3, 2003, 09:16:26 , Search time 7.86585 Seconds (without alignments) 1133.686 Million cell updates/sec

Title:
Perfect score:
Sequence: US-09-890-752A-2 1148 1 MPLSSIFSRIGDPTVOASKL.....RRRRSQSPRRRRSQSREPQC 215

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

ų.	3 6) L	ى د د د) () A) N	7 6) N) N) N	22	21	20	19	18	17	16	15	14	13	12	11	10	9	6 0	7	o	U	4	(LI	N	۲	No.	Result	
79.5	79.5	α α	9 6	a .	9 0	9	0 0	0 00	ο α • σ	90.5	94.5	111	166	168	171	173	175	655.5	671	757.5	899.5	911.5	912.5			919.5		•	951.5	985.5	988	992.5	Score	,	
6.9	6.9		1.	•				3 ·			8	٠	٠		14.9	٠	•	٠	58.4			79.4	79.5	80.0			80.1	_	N	5	86.1	86.5	•	Query	AP
891	303	867	832	3148	329	503	498	219	951	208	484	196	305	305	305	305	305	187	188	217	183	185	195	183	185	183	183	183	183	212	211	214	Length		
ب						· 1		•	•	μ.	•	•		-	H	ب	,	μ	۲	_	۳	μ	↦	H	-	–	н,	د.,	_	_	μ.	س	BB		
MAY1_SCHCO	SFR1_ARATH	VL96_IRV1	ANR3_HUMAN	HD_FUGRU	SRA4_CAEEL	VE2_HPV21	VEZ_HPV08	NOL3 HUMAN	SFR8_HUMAN	YSX2_CAEEL	SFRBHUMAN	SFR2_CAEEL	CORA HPBDU	CORA HPBDW	CORA HPBDB	CORA HPBDC	CORA HPBHE	CORA WHV8	CORA WHV1	CORA HPBGS	CORA HPBVL	CORA HPBV2		CORA HPBV4	CORA HPBVW	CORA HPHVO	CORA HPRVJ	CORA HDBVZ	CORA HPBVY	CORA HPBVT	CORA HPBVA	CORA HPBV9	ID		SOMMAKIES
P37936 schizophyll	U1	tipul			6 caeno	human	2 human	homo	N	μ.		caenorhabo	duck hepat	duck hepat	duck hepat	duck		woodchiick	v		P12901 henatitis b	PORTAR hematities b	P29178 hepatitie b	PO3150 hematitie b		pidacitis b		TOSTAG REPARTICES D		One does howeveries b	Jι	P17099 henatitie h	Description		

45	عيد ما هي	4.2	41	40	39	86	37	i G	, ,	ω ι 4 1
75.5	76	77.5	77.5	77.5	77.5	78	78	ζ.	2 6	79
6.6	6. 6.7	6.8	6	6. 80	ნ. 8	6.8	ნ. მ	6.8	6.9	6.9
802	77 1286	2404	673	493	252	2426	1042	164	2799	483
ر سر		۳	μ,	-	_	_	μ.	۳	μ	1
BCB2_ACEXY	PRT2_SEPOF	SON MOUSE	LOXS HUMAN	VE2 HPV19	VPHR NPVAC	SON HUMAN	SUWA DROME	SFR3_HUMAN	BDD_HUMAN	VE2_HPV14
082860 ac		-			_	_	-	••	•	_
nomo sapie	sepia offic	omo sapie	Tded mem	ride Jenia	ond on pre-	or carried	מייין יולים מיייין	mo sapier	omo sapier	human papil

ALIGNMENTS

ઠ	Ş	D	Ş	Db	Ş	뮹	ঠ	¥ & O	SQ	P	FT	뮸	DR.	귏	8	88	8	ន្តន	3 6	38	გ	라 3	R R	RN	Q.	88	<u> </u>	DE	DJ.	3 5	S S	# # # # # # # # # # # # # # # # # # #	RES
190 RTPSPRRRSQSPRRRRSQSRESQC 214	191 RTPSPRRRRSQSPRRRRSQSREPQC 215	 RGRSPRR	NAPILSTLPETTVVRRRGRSPRR		73 EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPBFRGDASRDLVVSYVNTNMGLKFRQL 132		13 PTVQASKICLGWIWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72	Query Match 86.5%; Score 992.5; DB 1; Length 214; Best Local Similarity 93.2%; Pred. No. 8.3e-82; Matches 191; Conservative 2; Mismatches 5; Indels 7; Gaps 2;	SEQUENCE 214 AA; 24722 MW; 2D668333BC5AFB8C CRC64;	201	COTE protein; Repeat. RBPEAT 193 200	; PF00906; Hepatitis_core;	InterPro; IPR002006; Hepatitis core.	, X51970; CAA36232.1;	Comment of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contro	a license agreement (See http://www.ii	and this statement is not removed	non-profit institutions as long as its content is in no	ween the Swiss Institute of Bioinfo	ROT entry is copyright.		Submitted (FEB-1990) to the EMBI/GenBank/DDBI databases	SEQUENCE FROM N.A.	[1]	NCBI_TaxID=10410;	Viruses: Retroid viruses: Heradraviridae Cartet		D .	01-AUG-1992 (Rel. 23, Last annotation undate)	(Rel. 15, Creat		CORA HPBV9 STANDARD; PRT; 214 AA	RESULT 1

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                    CORATOR ACCORATOR ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDANT ACCORDAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 189; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORA HPBVA
P24023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAR-1992 (Rel. 21, Created)
01-MAR-1992 (Rel. 21, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Core protein;
REPEAT 18
REPEAT 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Viruses; Retroid
NCBI_TaxID=10411;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Core
SEQUENCE FROM N.A. MEDLINE-93346970; P. Neumann H., Schaefe
                                                                                                                                                                                                                     01-NOV-1995
01-NOV-1995
                                                                                                                                                                                                                                                              CORA HP
Q05495;
Q1-NOV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M32138; -; NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Virology 176:596-603(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tong S., Li J., Vitvitski L., Trepo C.; 
"Active hepatitis B virus replication in t 
associated with viral variants containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=90266476; PubMed=2345966;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; A34773; NKVLA1.

InterPro; IPR002006; Hepatitis_core
Pfam; PF00906; Hepatitis_core; 1.
                                                                                                                                                                                                                                                                                                                                  HPBVT
                                                                                             Hepatitis B virus (subtype adw4
Viruses; Retroid viruses; Hepadr
NCBI_TaxID=45410;
                                                                                                                                                                                                Core
                                                                                                                                                                                                                                                                                                                                                                                                                       189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHCSPHHTALRQAILCWGELMTLATWYGVNLEDPEPRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTVQASKLCLGWL-DMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTVQASKLCIGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESF
                                                                                                                                                                                                                                                                                                                                                                                                                                                PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LMFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LWFH18CLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHCSPHHTALROAILCWGDLITLSTWVGGNLEDP----TSRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                antigen
                                                                                                                                                                                                                                                                                                            HPBVT
                                                                                                                                                                                                                                                                                                                                                                                                                       PSPRRRRSQSPRRRRTQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in; Repeat.
183 19
198 20
211 AA; 2
                                                                                                                                                                                                                  (Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86.1%;
ilarity 93.1%;
Conservative
                      46970; PubMed=8345355;
Schaefer S., Yoshida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            в (вtrain alphal).
viruseв; Hepadnaviridae;
                                                                                                                                                                                                                  32, Created)32, Last sequence update)32, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    190
206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24208 MW; B774AC72E65C75AB CRC64;
                                                                                                                             adw4 / strain Brazil / isolate w4B)
Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 988; DB 1;
Pred. No. 2.1e-81;
4; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                          211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                  PRT;
                         C.F.T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ion in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211
                                                                                                                                                                                                                                                                                                                  212
                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ይ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                  ξ
                         Gaspar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              presence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 211;
                             A.M.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of anti-HBe
pre-C region
                             Repp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                region.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N
```

```
RESULT 4
                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                      よ
                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                ð
Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Core protein;
DOMAIN 17
DOMAIN 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Identification of a new hepatitis B virus that expresses HBV surface antigen subtype J. Gen. Virol. 74:1627-1632(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerlich W.H.;
                                                                                                                                                                                                21-JUL-1986
21-JUL-1986
01-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a copyright the Swiss Institute of Bioinformatics and the EMBL
                       MEDLINE-65204397; PubMed=3996597; Bichko V., Pushko P., Dreilina D., "Subtype ayw variant of hepatitis B analysis.";
                                                                                                                                                                                                                           CORA HPBVY
P03146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00906; Hepatitis_core; Core protein; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X69798; CAA49452.1; -. InterPro; IPR002006; Hepatitis_core
                                                                                           SEQUENCE FROM N.A.
MEDIINE=81012091; PubMed=399327;
Galibert F., Mandart B., Fitoussi F.,
"Nucleotide sequence of the hepatitis
cloned in B. coli.";
                                                                                                                                               Viruses; Retroid
NCBI_TaxID=10418;
                                                                                                                                                            Hepatitis B virus (subtype ayw)
Viruses; Retroid viruses; Hepac
                                                                                                                                                                                        Core antigen
                  FEBS
                                                                                  cloned in B. coli.";
Nature 281:646-650(1979).
                                                                                                                                                                                                                                                                                    190
                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                                                                                                                           133
                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                                                                                                                                              73
                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEVLVSFGVWIRTDPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                           PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                               PSPRRRRSQSPRRRRSQSRBPQC
                                                                                                                                                                                                                                                                                                                       PTVQASKLCLGWLWGWDIDPYKEFGASVELLSFLPSDFFPSVRDLLDTASALYRDALESP
                                                                                                                                                                                                                                                                                    PSPRERRSOSPERRESOSPASOC
 SWISS-PROT
                  Lett.
                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
184
184
191
191
                   185:208-212(1985).
                                                                                                                                                                                                  (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ä
                                                                                                                                                                                                                                       STANDARD;
 entry
                                                                                                                                                                                                  01,
14,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204
203
188
195
203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24234 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                               85.8%;
                                                                                                                                                                                                  Last
Last
                                                                                                                                                                                                                     Created)
 18
copyright.
                                                                                                                                                              Hepadnaviridae;
                                                                                                                                                                                                   sequence up
annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                       8;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 985.5; I
Pred. No. 3.5e
8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ARG-RICH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>υ</u> 2
                                                                                                                                                                                                                                                                                                       215
                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F832610DB7C36FD2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                985.5;
No. 3.5
                                     Pumpen P., Gr
                                       B
                                                                                                                                                                                                   update)
on update)
   H
                                                                                                                                                                                                                                        183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEATS
                                                                                                        Tiollais P.,
B virus geno
    8
                                                                                                                                                                                                                                                                                                                                                                                                                                               .5e-81;
                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HBV) genotype from Brazil adw4.";
                                                                                                                                                                Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           띪
   produced
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                         ũ
                                                 Gren
                                                                                                        genome
                                      primary
                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                 E.
                                                                                                                 Charnay
   through
                                                                                                        (subtype ayw)
                                         structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a collaboration
      þ
                                                                                                                    ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                          ٠,
دن
      collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                              189
                                                                                                                                                                                                                                                                                                                                                192
                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                    132
                                                                                                                                                                                                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                                                                                                                                                            ۲.
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Sim
Matches 182;
                                                     This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Enthe Envoyean Bioinformatics Institute. There are no restruct by non-profit institutions as long as its content modified and this statement is not removed. Usage by antenties requires a license agreement (See http://www.isb-rorsend an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                         CORA HPBVZ
P03147;
                         EMBL; J02202; AAA45486.1; -. EMBL; A08967; CAA00816.1; -.
                                                                                                                                                         Leadbetter G., Murray K., "Hepatitis B virus genes and their expression Nature 282:575-579(1979).
                                                                                                                                                                                        PABDLINE=81012115; PubMed=399329;
PaBW M., Goto T., Gilbert W., Zink B.,
                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                         Viruses; Retroid
                                                                                                                                                                                                                                                                                              Core
                                                                                                                                                                                                                                                                                                        21-JUL-1986
01-OCT-1989
                                                                                                                                                                                                                                                                                                                                21-501-1986
                                                                                                                                                                                                                                                                                                                                                                   HPBVZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                           NCBI_TaxID=10419;
                                                                                                                                                                                                                                                                   Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002006; Hepatitis_core.
Pfam; PF00906; Hepatitis_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; V01460; CAA24706.1; ALT INIT. EMBL; X02496; -; NOT ANNOTATED CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _
                 B93217; NKVLA2
                                                                                                                                                                                                                                                                                           antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                 SQSRESQC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                         IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFROLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A03711; NKVLAH,
A03712; NKVLBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                        SQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Hep.
1; Repeat.
162 16
170 1
33
31 80
183 A
   IPR002006;
                                                                                                                                                                                                                                                                                                    (Rel. 01,
(Rel. 01,
(Rel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                        viruses;
                                                                                                                                                                                                                                                                  (subtype adyw)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           169
177
Hepatitis_core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21116 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.9%;
                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                    Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T -> N (IN REF. 2).
A -> I (IN REF. 2).
b E0D9D9763F24E958 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 951.5;
Pred. No. 3.2
                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                    183 AA
                                                                                                                                                                                        Schaller H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; DB 1; Length 183; .2e-78;
                                                                   . Usage by and for commercial http://www.isb-sib.ch/announce/
                                                                                                                                                                in E. coli.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                       McKay P.,
                                                                                                     restrictions
                                                                                                                 TEMBL
                                                                                             18
                                                                                                                a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                            ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                           175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115
                                                                                           g
                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲
```

```
밁
                           S
                                                                                                  RESULT
CORA_HP
                                                 Query Match
Best Local Sim
Matches 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SALAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 176
                                                                                                                    Pfam; PF00906; Hepatitis core. Core protein; Repeat. Repeat. Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                           01-AUG-1990
01-AUG-1990
01-FEB-1991
                                                                                                 SEQUENCE
                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                  Core antigen.
Hepatitis B virus (subtype adw / strain Japan/pJDW233).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                             REPEAT
                                                                                                                                                                 EMBL; D00329; -; NOT_ANNOTATED_CDS.
PIR; A28925; NKVLJ1
                                                                                                                                                                                                                                                                                                 J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                                                       "Typing hepatitis B virus by homology in nucleotide sequence: comparison of surface antigen subtypes.";
                                                                                                                                                                                                                                                                                                                                    Okamoto H., Tsuda F.,
Miyakawa Y., Mayumi M.
                                                                                                                                                                                                                                                                                                                                             MEDLINE=89010694; PubMed=3171552; Okamoto H., Tsuda F., Sakugawa H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HPBVJ
                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10413;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Core protein;
REPEAT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00906; Hepatitis_core; 1.
                             28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          148 IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRSPRRRTDSPRRRRSQSPRRRR
       H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Sim
hes 176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ...
                MDIDPYKEFGATVELLSFLPSDFFFSVRDLLDTASALYRRALESPRHCSPHHTALRQAIL
MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTVSALYREALKSPEHCSPHHTALROAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTAAALYRDALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LABAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOSREPOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CWGDLMTLATWVGTNLEDP-----ASRDLVVSYVNTNVGLKFRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                             162
170
183 AA;
                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 15, Created)
(Rel. 15, Last sequence update)
(Rel. 17, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             n; Repeat.
162 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                          177
                                                          80.1%;
93.1%;
                                                                                               21224 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21042 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81.2%;
93.6%;
                                                ; Score 919.5;
; Pred. No. 2.3e
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 932.5;
Pred. No. 1.
                                                                                            9FDD6B5F5AF5E160 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   545ED0E55527F26C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                            Sastrosoewignjo R.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                        .3e-75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .6e-76;
                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
                                                                     Length
                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                      183;
                                                                                                                                                                                                                                                                                                                                             Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183;
                                              5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>ن</u>
                                                                                                                                                                                                                                                                                                                                            3
                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87
                                              ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1:
```

S

CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147

```
SARAGO DE LE COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
RESULT. 8
CORA_HPBVW .
ID __CORA_HPBVW
                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                   밁
                                                                                                                       밁
                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HPBVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Core antigen.
Hepatitis B virus (subtype adw / strain Okinawa/pODW282).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIJINE-89010694; PubMed=3171552; Okamoto H., Tsuda F., Sakugawa H., Sastros Mijakawa Y., Mayumi M.; "Typing hepatitis B virus by homology in r comparison of surface antigen subtypes."; J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-AUG-1990
01-FEB-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORA HPBVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; B28925; NKVLJ2. TinterPro; IPR002006; Hepatitis_core. Pfam; PF00906; Hepatitis_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; D00330; -; NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Core protein; Repeat.
REPEAT 162 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                     116
                                                                                                                                                                      208
                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                        28 WDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                          μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOSRESOC 183
                                                                                                                                                                                                                   LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                                                                                              IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 207
                                                                                                                                                                                                                                                                                                                                       CWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                            SQSREPQC
                                                                                                                                                                                                                                                                                                            CWGELMNLATWVGSNLEDP----ASRELVVSYVNVNMGLKIRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                                                                             MDIDPYKEFGASVELLSFLPSDFFPSVRDLLDTASALYKEALESPEHCSPHHTALRQAIL 60
                                                                                                                         SQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     170
183 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Rel. 15,
(Rel. 15,
(Rel. 17,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                            183
                                                                                                                                                                      215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21081 MW; 66BDB2633122930C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80.1%;
93.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence update)
annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred.
3; Mi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 919.5;
Pred. No. 2.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sastrosoewignjo R.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
         185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .3e-75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleotide sequence:
         ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1; Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ភ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Imai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115
                                                                                                                                                                                                                                                                                                                         115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1;
```

```
RESULT 9
CORA_HPBV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RECORD OF THE RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P03149;
21-JUL-1986 (Rel.
21-JUL-1986 (Rel.
01-OCT-1989 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00906; Hepatitis_core;
Core protein; Repeat.
REPEAT 164 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIJINE-83168919; PubMed-6300776;
Ono Y., Onda H., Sasada R., Igarashi K
"The complete nucleotide sequences of i
DNA; subtype adr and adw.";
Nucleic Acids Res. 11:1747-1757(1983).
                                                                                                                                                                                                                                                                    P03150; P03151;
21-JUL-1986 (Rel. (
21-JUL-1986 (Rel. (
01-FEB-1991 (Rel. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; V00866; -; NOT_ANNOTATED_CDS.
PIR; C93460; NKVLA6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=106821;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus (subtype adw).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Core antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                    Hepatitis B virus (subtype adr4),
Hepatitis B virus (subtype adr), and
Hepatitis B virus (subtype adr) detrain Indonesia/piDW420)
Hepatitis B virus (subtype adw / strain Indonesia/piDW420)
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnaviru
NCBI_TaxID=10409, 106820, 10412;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Interpro; IPR002006; Hepatitis_core
                                                                                                                                                                                                                                           Core antigen.
                                                                                                                                                                                                                                                                                                                                                                     CORA_HPBV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         116
                                             SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR--RGRSPRRRTPSPRRRRSQSPRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CWGBLMTLATWYGVNLEDPEPRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CWGELMTLATWVGNNLQDP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RRSQSRBSQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  al Similarity
177; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164
172
185 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                             N.A.
                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12,01
                                                                                                                                                                                                                                                                    01, Created)
01, Last sequence update)
17, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
21394 MW; B86A90D541BA70F9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80.1%;
93.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 919.5; I
; Pred. No. 2.4e-
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Igarashi K., Sugino Y., Nishioka K.; quences of the cloned hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -ASRDLVVNYVNTNMGLKIRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                                          183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .4e-75
                                                                                                                                                                                                                                                                                                                                                                          ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                             Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   147
```

2

MEDLINE=83168919;

PubMed=6300776;

STRAIN-ADR;

```
RESULT 10
CORA HPBVF STAN
ID CORA HPBVF STAN
AC P29178;
DT 01-DEC-1992 (Rel. 2.
DT 01-DEC-1992 (Rel. 2.
DT 01-DEC-1992 (Rel. 2.
DT 01-DEC-1992 (Rel. 2.
DE Core antigen.
                                                                                                                                                                                                                 망
                                                                                                                         용
                                                                                                                                           S
                                                                                                                                                                       밁
                                                                                                                                                                                         S
                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 174; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; V00867; -; NOT ANNOTATED CDS.
EMBL; X01587; CAA25745.1;
EMBL; D00331; -; NOT ANNOTATED CDS.
PIR; A93480; NKVLA5.
PIR; B93460; NKVLA4.
PIR; C28925; NKVLJ3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002006; Hepatitis_core
Pfam; PF00906; Hepatitis_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-89010694; PubMed=3171552;
Okamoto H., Tsuda F., Sakugawa H., Sastro:
Miyakawa Y., Mayumi M.;
"Typing hepatitis B virus by homology in r
comparison of surface antigen subtypes.";
J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                                                                                                                                                        Core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=ADW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic Acids [3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     adr."
                                                                                                                        176
                                                                                                                                               208
                                                                                                                                                                       116
                                                                                                                                                                                                148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matsubara K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=83246570; PubMed=6306594; Fujiyama A., Miyanohara A., Nozaki C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ono Y., Onda H., Sasada R., Igarashi K., Sugino Y., Nishioka K.; "The complete nucleotide sequences of the cloned hepatitis B virus DNA; subtype adr and adw.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic
                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                             28
                                                                                                                                                                                                                                                                              MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALBSDEHCSDHHTALRQAIL
                                                                                                                       SQSRESQC 183
                                                                                                                                            SOSREPOC 215
                                                                                                                                                                 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                               MDIDPYKEFGASVELLSFLPSDFFPSIRDLLDTASALYREALESPEHCSPHHTALROAIL
                                                                                                                                                                                                                                                                                                                                                                                                      protein; Repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acids Res. 11:1747-1757(1983)
                                                                                                                                                                                                                                                                                                                                                                   183 AA;
                                                                                                                                                                                                                                                                                                                                                                               162
170
                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          structural analyses of hepatitis B virus DNAs, subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Res.
                                                          STANDARD;
       24, Created)
24, Last sequence update)
24, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                               169
177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11:4601-4610(1983).
                                                                                                                                                                                                                                                                                                                                                                   21095 MW;
                                                                                                                                                                                                                                                                                                                                80.0%;
92.6%;
                                                                                                                                                                                                                                                                                                                 .4
                                                                                                                                                                                                                                                                                                                              Score 918.5;
Pred. No. 2.9
                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                  ED2DA1DB07FB596D
                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sastrosoewignjo R.I.,
                                                          195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yoneyama T.,
                                                          ζ
                                                                                                                                                                                                                                                                                                                          .9e-75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nucleotide
                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            as its content is in
                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ohtomo
                                                                                                                                                                                                                                                                                                                                        183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Imai M.,
                                                                                                                                                                                                                                                                                                                <u>ن</u>
                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                  175
                                                                                                                                                                                         207
                                                                                                                                                                                                                 115
                                                                                                                                                                                                                                        147
                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5 g
                                                                                                                                                                                                                                                                                                               1,
```

```
CORA HPBUZ

CORA HPBUZ

ID "CORA H

AC P03178

DT 21-UIII

DT 01-NIIII

DT 01-NIIII

DT 15-DEC

DE Core a

GN C.

Viruse

OC Viruse

OC Viruse

OC NCBI T

RN [1]"-"

RN [1]"-"

RN [1]"-"

RN Valenz

RL Animal

DR PIR;

RL Animal

DR PIR;

RL FAM;

RL FAM;

RL FAM;

RL FAM;

RL FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;

RR FAM;
            片
                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                          Query Match
Best Local S
Matches 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SO SET TO DR REAL PROPERTY OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P03148;
21-JUL-1986
01-AUG-1992
15-DEC-1998
                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                          Core protein; Repeat
REPEAT 164 1
REPEAT 172 1
                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002006; Hepatitis_core Pfam; PF00906; Hepatitis_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                 Animal virus genetics, PIR; A94409; NKVLA3.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Valenzuela P., Quiroga M., Zaldi
(In) Field B.N., Jaenisch R., Fo
Animal virus genetics, pp.57-70,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus (subtype adw2).
Viruses; Retroid viruses; Hepadna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REPEAT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=10408;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Core antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=90169850; PubMed=2307406;
Bhat R.A., Ulrich P.P., Vyas G.N.;
"Molecular characterization of a new variant
a persistently infected homosexual man.";
Hepatology 11:271-276(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORA_HPBV2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00906; Hepatitis_core;
Core protein; Repeat.
REPEAT 174 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus (subtype adw2 variant sf)
Viruses; Retroid viruses; Hepadnaviridae; O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=31515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002006;
                                                                28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
            _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                              MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
MDIDPYKEPGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSOSPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKPRQLLWFHISCLTFGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RRRSOSRESOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ETVLEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSPSPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AILCWYELMTLATWYGNNLEDP----ASRDLYVNYYNTNMGLKIRQLLWFHISCLTFGR
                                                                                                                          176;
                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 91.1
74; Conservative
                                                                                                                                                                                                                                        164
172
185 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
195 AA;
                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel. 01, Created)
(Rel. 23, Last seq
(Rel. 37, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  viruses; Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     215
                                                                                                                                                                                                                                                                          179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79.5%;
91.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 189
                                                                                                                                                                                                                                        21304 MW;
                                                                                                                                            79.4%;
92.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22461 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis_core.
itis core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                      , Zaldivar J., Gra
R., Fox C.F. (eda
.57-70, Academic )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence update)
annotation update)
                                                                                                              3;
                                                                                                                    Score 911.5;
Pred. No. 1.2e
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 912.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                     31F4DC338B507E19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E2B166F879CB7CB7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                      r J., Gray P.,
C.F. (eds.);
cademic Press,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                .2e-74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .le-74;
                                                                                                                                                                              멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ę,
                                                                                                                    4
                                                                                                                                                                        μ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                             New
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rutter W.J.;
                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                      York (1980)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₿
                                                                                                                 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             virus
                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SET TERRET REPRESENTATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
CORA_HI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                     밁
                                                                                                            δ
                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                          밁
RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Sim
Matches 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P12901;
01-OCT-1989
01-OCT-1989
01-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HPBVL
CORA_HPBVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; D00220; BAA00157.1; -.
PIR; A28885; NKVLCP.
InterPro; IPR002006; Hepatitis_core.
Pfam; PF00906; Hepatitis_core; 1.
Core protein; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the European Bioinformatics Institute. There are no restrictions by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for contentitles requires a license agreement (See http://www.isb-sib.ch/aror send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        virus isolated from a naturally in J. Gen. Virol. 69:1383-1389(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "The complete nucleotide sequence of the genome of a hepatitis virus isolated from a naturally infected chimpanzee.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. MEDLINE=88258473; PubMed=2838576;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis B virus (strain lsh / chimpanzee isolate).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vaudin M., Wolstenholme
Harrison T.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148
                                                                       176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
                                                                                                                 208
                                                                                                                                                                   116
                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                                                                                                                                                                                                                                                       28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                       MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                              CWGELMTLASWVGNNLEDP-----ASREQVVNYVNINWGLKIRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                          CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                          MDIDPYKEFGATVELLSFLPSDFPPSVRDLLDTASALYREALESPEHCSPNHTALRQAIL 60
                                                                     SQSPASQC
                                                                                                                 SOSREPOC
                                                                                                                                                                   LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 12,
(Rel. 12,
(Rel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          162
170
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                       183
                                                                                                                 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20999 MW; 923DCB94A33FC0E8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78.4%;
91.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 А.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 899.5;
Pred. No. 1.4e
5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tsiquaye K.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 1.4e-73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zuckerman
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             115
                                                                                                                                                                                                                                                                   115
                                                                                                                                                                        175
                                                                                                                                                                                                                    207
                                                                                                                                                                                                                                                                                                                                                                                                              87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲.
```

```
CORA_HPBGS
ID CORA H
AC P03153
DT 21-UII
DT 21-UII
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01-UNI
DT 01
                                                                                                                                                                                                                                                                                                                                    RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
ROCOSOSORDATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P03153;
21-JUL-1986
21-JUL-1986
01-JAN-1990
                                                                                                                                                                                                            CORA WHV1 STAN
P03152;
21-JUL-1986 (Rel. (
21-JUL-1986 (Rel. (
21-JUL-1998 (Rel. (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a c between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and fo entities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Nucleotide sequence of an infectious molecularly cloned genome ground squirrel hepatitis virus.";
J. Virol. 51:367-375(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002006; Hepatitis_core. Pfam; PF00906; Hepatitis_core; 1. Core protein; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=84267998; Pul
Seeger C., Ganem D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses, Retroid
NCBI_TaxID=10406;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ground squirrel hepatitis virus (GSHV).
Viruses, Retroid viruses, Hepadnaviridae, Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Core antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; K02715; AAA46755.1; -. PIR; A03715; NKVLS.
            Woodchuck hepatitis virus 1 (WHV 1), Woodchuck hepatitis virus 7 (WHV 7), Woodchuck hepatitis virus 59 (WHV 59), and Woodchuck hepatitis virus 69 (WHV 59), and Woodchuck hepatitis virus 8 (infectious clone) (WHV 8). Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus. NCBI_TaxID=10430, 10432, 10431, 10434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
                                                                                                                                                                                           Core antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HPBGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LSSIFSRIGDPTVOASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTAS
                                                                                                                                                                                                                                                                                                                                                                                                                                RRGGSRAARSPRRRTPSPRRRRSQSPRRRRSQSPASNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRG-----RSPRRRTPSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NTWGLKVROTLWFHLSCLTFGQHTVQEFLVSFGVWIRTPAPYRPPNAPILSTLPEHTVIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TNMGLKFROLLWFHISCLTFGRETVIEYLVSFGVWIRTFPAYRFPNAPILSTLPETTVVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LCLVFACVPCPTVQASKLCLGWLWDMDIDPYKEFGSSYQLLNFLFLDFFFDLNALVDTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALYEEELTGREHCSPHHTAIRQALVCWEELTRLITWMSENTT-----EEVRRIIVDHVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALYREALESDEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVN 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   204
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Rel. 01, Created)
(Rel. 01, Last sequence up
(Rel. 13, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=6086950;
D., Varmus H.B.;
                                                                                                                                                                                                               01,
01,
37,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25189 MW; DF489467355EC11A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66.0%; Sc
65.6%; Pr
Live 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Varmus H.
                                                                                                                                                                                                               Created)
Last sequence Last anno
                                                                                                                                                                                                                 sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 757.5; DB 1
Pred. No. 8.7e-61;
2; Mismatches 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                     £
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               collaboration .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ģ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ទ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ŋ
```

```
RESULT 15
CORA_WHV8
ID CORA
                                                                                                                                                                                                                                                                                                                                                                      묽
                                                                                                   S
                                                                                                                                   밁
                                                                                                                                                       δ
                                                                                                                                                                                           ᅜ
                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; J02442; AAA46761.1; ...
EMBL; M18752; AAA46769.1; ...
EMBL; M19183; AAA46765.1; ...
EMBL; J04514; AAA46772.1; ...
PIR; C32397; NKVLCT.
PIR; C32397; NKVLC4.
PIR; C32397; NKVLC4.
 CORA_WHV8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002006; Hepatitis_core.
Pfam; PP00906; Hepatitis_core; 1.
Core protein; Repeat.
REPEAT 167 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
SPECIES=Woodchuck hepatitis virus 7,
MEDLINE=88101359; PubMed=3336938;
Cohen J.I., Miller R.H., Rosenblum B.
Purcell R.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.

SPECIES=Woodchuck hepatitis virus 1;

MEDLINE=82216969; PubMed=7086958;

Galibert F., Chen T.N., Mandart E.;

"Nucleotide sequence of a cloned woodchuck hepatitis virus comparison with the hepatitis B virus sequence.";

J. Virol. 41:51-65(1982).
                                                                                                                                                                                                                                                                                                                                                                                      REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Complete nucleotide sequence of a molecular clone of w hepatitis virus that is infectious in the natural host. Proc. Natl. Acad. Sci. U.S.A. 86:1846-1849(1989).
                                                                           176
                                                                                                                                   116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPECIES=Woodchuck hepatitis virus 8 (infectious clone);
MEDLINE=89184524; PubMed=2928306;
Girones R., Cote P.J., Hornbuckle W.E., Tennant B.C., Gerin J.L.,
Purcell R.H., Miller R.H.;
                                                                                                      203
                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Sequence comparison of woodchuck hepatitis virus replicative forms shows conservation of the genome."; virology 162:12-20(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                           61
                                                                                                                                                                                                                        88
                                                                                                                                                                                                                                                                                 28
                                                                                                                                                                                                                                                     _
                                                                                                                                              IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRG-----RSPRRTTPSPRRRRSQS
                                                                                                                                                                                                                                                             MDIDPYKEFGATVELLSFLPSDFPPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                        PRRRRSOSPSANC
                                                                                                    PRRRRSOSREPOC 215
                                                                                                                          QBFLVSFGVWIRTPAPYRPPNAPILSTLPEHTVIRRRGGARASRSPRRRTPSPRRRRSQS
                                                                                                                                                                                 CWDELTKLIAWMSSNITSEQV-----RTIIVNHVNDTWGLKVRQSLWFHLSCLTFGQHTV
                                                                                                                                                                                                             CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                            MDIDPYKEFGSSYQLLNFLPLDFFPDLNALVDTATALYEEELTGREHCSPHHTAIROALV
                                                                                                                                                                                                                                                                                                             126;
                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                     188 AA;
                                                                                                                                                                                                                                                                                                                                                                                   175
                                                                                                                                                                                                                                                                                                            Conservative
 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                   21693 MW;
                                                                                                                                                                                                                                                                                                                   58.4%; Score 671; DB 1 65.3%; Pred. No. 4e-53;
                                                                                                                                                                                                                                                                                                       21;
PRT;
                                                                                                                                                                                                                                                                                                                                                                1F4454D0A7B7CE42 CRC64;
                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₩;
187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and Woodchuck hepatitis virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Denniston K.,
                                                                                                                                                                                                                                                                                                                                1; Length 188;
                                                                                                                                                                                                                                                                                                       36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of woodchuck
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerin
                                                                                                                                                                                                                                                                                                     10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome:
                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                      202
                                                                                                                                                                                   115
                                                                                                                                                                                                               147
                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                    N
```

Search completed: February Job time : 9.86585 secs

3, 2003,

09:24:20

```
S
                                                                                                                                                          S
     문
                                                                                                            밁
                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOUTH THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REPEAT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00906; Hepatitis_core; 1.
Core protein; Repeat.
REPEAT 166 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P06433;
01-JAN-1988
01-JAN-1988
01-OCT-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collabbetween the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=86062931; PubMed=3855246;
Kodama K., Ogasawara N., Yoshikawa H., Murakami S.;
"Nuclectide sequence of a cloned woodchuck hepatitis
evolutional relationship between hepadnaviruses.";
J. Virol. 56:978-986(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; M11082; AAA19185.1; -.
  176
                                                                                                            116
                                                                                                                                                                148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; A03714; NKVLC2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Woodchuck hepatitis virus 8 (WHV 8).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
NCBI_TaxID=10433;
                                                   204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR002006; Hepatitis_core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Core antigen.
                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                              28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                   IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRG----RSPRRRTPSPRRRRSQSP
RRRRSOSPSANC
                                                RRRRSQSREPQC 215
                                                                                                 QEFLVSFVVWIRTPAPYRPPNAPILSTLPEHTVIRRGGARASRSPRRRTPSPRRRRSOSP
                                                                                                                                                                                                        CWDELTKLIAWMSSNITSEQV-----RTIIVNHVNDTWGLKVRQSLWFHLSCLTFGQHTV
                                                                                                                                                                                                                                                     CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                 MDIDPYKEFGSSYQLLNFLPLDFFPDLNALVDTATALYEEELTGREHCSPHHTAIRQALV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           166
174
187 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel.
187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
21579 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12,66,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     57.1%; Score 655.5; 64.6%; Pred. No. 9.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
Last seq
Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        D4BC446FF7163165 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           .8e-52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration MBL outstation ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genome:
                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                              175
                                                                                                                                                 203
                                                                                                                                                                                                                                                                 147
                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                           2
```

· · · · · · · · · · · · · · · · · · ·			
			·

٠,

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein -
         9
                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
       1030.5
1037.5
1037.5
1037.5
1035.5
1034.5
1034.5
1034.5
1032.5
1032.5
1032.5
1032.5
1032.5
1032.5
1032.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
1033.5
                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein search, using sw model
                                                                                                                                                                                                                                                                                                     Query
Match
      BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                             4 3 2 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-890-752A-2
1148
1 MPLSSIFSRIGDPTVQASKL......RRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            February 3, 2003, 09:21:57; Search time 14.2334 Seconds (without alignments)
1452.136 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                           PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        283224 seqs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.3 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                    Length DB
     $53251
$53159
$53159
$53200
$53220
$53281
$53198
$531281
$53198
$53227
$53227
$53227
$53228
$53227
$532328
$53253
$53253
                                                                                                                                                                                          NKVLAH
$53204
$53211
$32204
$20750
$53216
$53272
$53272
$53274
$53163
                                                                                                                                                                                                                                                                                                     ij
                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      283224
   ••••••••••••
                                                                                                                                                                                                                                                                                                  Description
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
e antigen precurso
                                                                                                                                                                                                                                               antigen precurso antigen precurso
                                                                                                                                                                                                                                                                             antigen precurso
                                                                                                                                                                                                                                                                   precurso
```

45	44	. 44	4.2	41	40	13	ىي 80	37	۵ ا	(L)	4.	ı W	32	31	30
964.5	985.5	886	992.5	999.5	999.5	1001.5	1002.5	1006.5	1007.5	1007.5	1007.5	1008.5	1008.5	1008.5	1011.5
84.0	85.8	86.1	86.5	87.1	87.1	87.2	87.3	87.7	87.8		87.8		87.8	87.B	88.1
212	212	211	214	359	212	214	214	214	212	212	212	214	212	212	214
N	N	ب	-	N	N	Н	Ŋ	N	N	N	ب	<u>, .</u>	μ	۲	N
S67504	JQ2227	NKVLA1	NKVLKS	S04570	S53161	NKVLA3	833686	S47409	S53157	\$53236	NKVLA4	NKVLA6	NKVLJ2	NKVLJ1	S01405
			antigen	т,				٦.	, ,	_				e antigen precurso	core antigen - hep

ALIGNMENTS

R;Lai, M.E.; Mazzoleni, A.P.; Pořru, A.; Balestrieri, A. submitted to the EMBL Data Library, March 1995 A;Reference number: \$53112 A;Recession: \$53191 A;Recession: \$53112 A;Recession: \$53191 A;Rolecule type: DNA A;Residues: 1-212 <lai> A;Coss references: EMBL:X85283; NID:g736088; PIDN:CAA59593.1; PID:g736090 A;Residues: 1-212 <la2> A;Coss references: EMBL:X85290; NID:g736114; PIDN:CAA59609.1; PID:g736116 A;Residues: 1-212 <la2> A;Coss references: EMBL:X85290; NID:g736114; PIDN:CAA59609.1; PID:g736116 A;Residues: 1-212 <la3> A;Accession: \$53234 A;Molecule type: DNA A;Residues: 1-212 <la4> A;Accession: \$53264 A;Accession: \$53264 A;Accession: \$53264 A;Accession: \$53249 A;Accession: \$53249 A;Accession: \$53249 A;Accession: \$53249 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession: \$53267 A;Accession</la4></la3></la2></la2></lai>	e antigen precursor / core antigen - hepatitis B virus (subtype ayw4, isolate hb321 an N;Alternate names: HBe antigen precursor / HBc antigen; pre-C/C antigen N;Contains: core antigen; e antigen N;Contains: core antigen; e antigen C;Species: hepatitis B virus, HBV A;Variety: subtype ayw4, isolate hb321; isolate patient Ferracuti'83; isolate patient Cheri'83 C;Date: 18-Dec-1981 #sequence_revision 08-Nov-1996 #text_change 16-Jul-1999 C;Accession: \$47405; \$53191; \$53209; \$53234; \$53264; \$53249; \$53262; \$53277; A03711 Submitted to the BMBL Data Library, August 1994 A;Description: Molecular cloning and sequencing of two complete genomes of polish isol A;Reference number: \$47404 A;Reference number: \$47404 A;Residues: 1-212 <plu> A;Cross-references: EMBL:235716; NID:9527435; PIDN:CAA84786.1; PID:9527437 A;Experimental source: subtype ayw4, isolate hb321</plu>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

sh isolate

nb321 and

Ca

```
e antigen precursor / core antigen - hepatitis B virus
N,Alternate names: HBe antigen precursor / HBc antigen; pre-C/C antigen
N,Contains: core antigen; e antigen
C;Species: hepatitis B virus, HBV
C;Accession: 553204; 553283
R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, A.
submitted to the EMBL Data Library, March 1995
A;Reference number: 553112
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Cross-references: EMBL:X85288; NID:g736107; PIDN:CAA59604.1; PID:g736109
A;Cross-references: EMBL:X85288; NID:g736107; PIDN:CAA59604.1; PID:g736109
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553283
A;Accession: 553284
A;Accession: 553284
A;Accession: 553284
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204
A;Accession: 553204

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Gene:
C;Superf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: EMBL:X85317, NID:9736211; PIDN:CAA59669.1; PID:9736214
A,Experimental source: patient Giordo-2'86
A;Note: due to a stop codon between the alternative initiators the e antigen R;Galibert, F.; Mandart, E.; Fitoussi, F.; Tiollais, P.; Charnay, P.
Nature 281, 646-650, 1979
A;Title: Nucleotide sequence of the hepatitis B virus genome (subtype ayw) in A;Reference number: A93214; MUID:81012091; PMID:399327
A,Accession: A03711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: DNA
A;Residues: 1-212 <GAL>
A;Cross-references: GB:J02203; NID:g329640; PIDN:AAA45489.1;
A;Experimental source: subtype ayw
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: $5327
A; Molecule type: Di
A; Residues: 30-212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Superfamily: hepatitis B virus core antigen; Reywords: alternative initiators; core protein; Reywords: alternative initiators; core protein; rejunal sequence #status predicted <SIG>; 1-29/Domain: signal sequence #status predicted <CAG>; 30-212/Product: core antigen #status predicted <EAG>; 30-178/Product: e antigen #status predicted <EAG>; 179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LMFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALBSP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTVQASKLCIGWIWGMDIDPYKEFGATVELLSFLPSDFFPSVRDILIDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EHCSPHHTALROAILCWGELMTLATWVGVNLEDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 853277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <1A7>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1040.5; D
Pred. No. 2e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ASRDLVVSYVNTNMGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID:g329642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ភ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <ECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۳
```

```
e antigen precursor / core antigen - hepatitis B virus (N,Alternate names: HBC antigen; HBe antigen precursor / N;Contains: core antigen; e antigen C;Species: hepatitis B virus, HBV A;Variety: isolate patient Castag-1'85; isolate patient C;pate: 08-U11-1995 #sequence_revision 03-Aug-1995 #text C;Accession: S5321; S53197 C;Accession: S5321; S53197 R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, A. submitted to the EMBL Data Library, March 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;179-212/Domain: carboxyl-terminal propeptide #link EAG #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: EMBL:X85291; NID:g736117; PIDN:CAA59611.1; PID:g736119
A;Experimental source: isolate patient Castag-1'85
A;Accession: S53197
                                                                                                                                                                                                                                                                                                                                                                                C;Keywords: alternative initiators; core protein F;1-29/Domain: signal sequence #status predicted <SIG>F;30-212/Product: core antigen #status predicted <CAG>F;30-178/Product: e antigen #status predicted <EAG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: EMBL:X85284; NID:g736095; PIDN:CAA59596.1; A;Experimental source: isolate patient Ferracuti-1'89 A;Note: due to a stop codon between the alternative initiations
                                                                                         S
                                                                                                                                밁
                                                                                                                                                                    S
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: C
C;Superfamily: hepatitis B virus core antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Note: due
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 30-212 < LAW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Residues: 1-212 <LAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: S53211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: S53112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                ;179-212/Domain:
                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ü
                     193
                                                         130
                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                            15
                                                                                                                                                                                                                                                 13
                                                                                                                                  75
                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LWFHISCLTPGRETVIEYLYSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRALLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PSPRRRRSQSPRRRRSQSRBPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSPRERESOSPERERSOSREPOC
                                                                                 LWEHISCLTEGRETVIEYLVSEGVWIRTPBAYRPBNAPILSTLEETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                            PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                  PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                          EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                           <u>LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT</u>
                                                                                                                                                                                                                                                                                         196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                carboxyl-terminal propeptide #link EAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90.5%;
                                                                                                                                                                                                                                                                                                           90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              yen - hepatitis B virus (1solate patient Castag-1'85
HBe antigen precursor / HBc antigen; pre-C/C antiger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1038.5;
Pred. No. 3e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                           Score 1037.5; DB Pred. No. 3.6e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                        ASRDLVVSYVNTNMGLKFROL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #text_change 26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           initiations
                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                      #status
                                                                                                                                                                                                                                                                                                                                   212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the e antigen precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ა</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    predicted
                                                                                                                                                                                                                                                                                                                                                                    predicted
                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74
                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AECP
                                                                                                                                                                                                                                                                                                                                                                          <ECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1
                                                                                                                                                                                                                                                                                               1.
```

```
C;Species: hepatitis B virus, HBV
A;Variety: subtype ayw, patient CI
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 2
C;Accession: $20750
R;Lai, M.E.; Mazzoleni, A.P.; Balestrieri, A.; Melis, A.; Porru,
submitted to the EMBL Data Library, March 1992
A;Description: Sequence analysis of HBV genomes isolated from pat
A;Reference number: $20745
                                                                                                                                                                                         e antigen precursor / core antigen - hepo
N;Alternate names: HBe antigen precursor
N;Contains: core antigen; e antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C/Superfamily: hepatitis B virus core antigen
C/Keywords: alternative initiators; core protein
F;1-29/Domain: signal sequence #status predicted <SIG>
F;30-212/Product: core antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <EAG>
F;30-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: DNA
A;Residues: 30-212 <LAI>
A;Residues: 30-212 <LAI>
A;Cross-references: EMBL:X85289; NID:g736110; PIDN:CAA59607.1; PID:g736113
A;Experimental source: isolate patient Castaa-2'87
A;Note: due to a stop codon mutation between the alternative initiatiors tl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N;Contains: core antigen; e antigen
C;Species: hepatitis B virus, HBV
C;Date: 20-Feb-1995 #sequence revision 20-Feb-1995 #text_change 20-Oct-2000
C;Accession: S32204, S53207
R;Preisler-Adams, S; Schlayer, M.J.; Peters, T.; Hettler, F.; Gerok, W.; Rasena
submitted to the EMBL Data Library, March 1993
A;Description: Identification and sequence analysis of hepatitis B virus DNA in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 4
S32204
S32204
Core antigen - hepatitis B virus (subtype ayw, patients C1000 N;Alternate names: HBe antigen precursor / HBc antigen, pre-C/C antigen
N:Contains: core antigen; e antigen
N:Contains: core antigen; e antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross references: EMBL:X72702; NID:g288927; PIDN:CAA51257.1; A;Experimental source: subtype ayw, patient C1000 R;Lai, M.B.; Mazzoleni, A.P.; Porru, A.; Balestrieri, A. submitted to the EMBL Data Library, March 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: S53207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: S53112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-212 < PRE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Reference number:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Accession: S32204
                                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                               130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                  ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                  LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                            LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPNAPILSTLPETTVVRRRGRSPRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EHCSPHHTALRQATLCWGELWTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHCSPHHTALRQAILCWGELMTLAIWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       832202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1037.5;
Pred. No. 3.66
                                                                                                                                                                                                               hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T.; Hettler, F.; Gerok, W.; Rasenack,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .6e-82
                                                                                                                                                                                                      B virus (subtype ayw, patient antigen; pre-C/C antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    initiations the
                                             patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:g288930
                                                                                                                         26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ភ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                         with HBsAg
                                                                                                                                                                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ^ECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                immuno
                                         negat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٦.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
S
                                         밁
                                                                           Ś
                                                                                                                      밁
                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
```

```
C;Superfamily: hepatitis B virus core antigen
C;Keywords: alternative initiators; core protein
F;1-29/Domain: signal sequence #status predicted <SIG>
F;30-212/Product: core antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <EAG>
F;179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e antigen precursor / core antigen N/Alternate names: HBe antigen pr N;Contains: core antigen; e antigen; C;Species: hepatitis B virus, HBV
                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: EMBL:X85293; NID:g736124; PIDN:CAA59616.1; PID:g736126
A;Experimental source: isolate patient Castag'3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
S53216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Superfamily: hepatitis B virus core antigen
C;Keywords: alternative initiators; core protein
F;1-29/Domain: signal sequence #status predicted <SIG>
F;30-212/Product: core antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <EAG>
F;30-178/Product: e antigen #status predicted <EAG>
                                                                                                                                                                                                                                                                                                                                                                                                A;Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A: Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           submitted to the EMBL Data A; Reference number: S53112 A; Accession: S53216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R; Lai, M.E.; Mazzoleni, A.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Variety: isolate patient Castag'3
C;Date: 08-Jul-1995 #sequence_revis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A, Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Gene: C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:X65258; NID:g59434; PIDN:CAA46354.1; A;Experimental source: subtype ayw, patient CI C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-212 <LAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antigen precursor / core antigen - hepatitis
Alternate names: HBe antigen precursor / HBc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Accession: S53216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;Date: 08-Jul-1995 #sequence_revision
                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
          133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                75
                                                                                    73
                                                                                                                        15
                                                                                                                                                            13
                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15
LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                        PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                      EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFROL
                                                                EHCSPHHTALRQAILCWGELWTLATWVGVNLEDPBFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                  PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDNASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                   196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LWFHISCLTFGRETVIBYLVAFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-212 <LAI>
                                                                                                                                                                                               Similarity 96.0
96; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                               90.2%;
96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P.; Porru, A.; E
Library, March
                                                                                                                                                                                                 0
                                                                                                                                                                                                                 Score 1035.5; DB 2; Pred. No. 5.4e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1037.5; DB Pred. No. 3.6e-82;
                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-Aug-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Balestrieri,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B virus (isolate antigen; pre-C/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                               2
                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:g59436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            patient
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-Aug-1999
                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                        129
                                                                                                                74
                                                                                                                                                      72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Castag'3)
                                                                                                                                                                                                                                                                     <ECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ∠ECP>
                                                                                                                                                                                         ļ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲,
```

```
e antigen precursor / core antigen - hepatitis B virus N; Alternate names: HBe antigen precursor / HBc antigen N; Contains: core antigen; e antigen C; Species: hepatitis B virus, HBV A; Variety: isolate patient Chighine-2'86 C; Date: 08-011-1995 #sequence_revision 03-Aug-1995 #tc C; Accession: 853225 R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, submitted to the EMBL Data Library, March 1995 A; Reference number: 853112 A; Accession: 853225 A; Reference number: 853112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e antigen precursor / core antigen - hepatitis N,Alternate names: HBe antigen precursor / HBc N,Contains: core antigen; e antigen C;Species: hepatitis B virus, HBV A,Variety: isolate patient Licheri-3'90 C;Date: 08-Jul-1995 #sequence_revision 03-Aug-1 C;Accession: 853272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Keywords: alternative initiators; core protein F;1-29/Domain: signal sequence #status predicted <SIG>F;30-212/Product: core antigen #status predicted <CAG>F;30-178/Product: e antigen #status predicted <EAG>F;179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: DNA
A;Residues: 1-212 <LAI>
A;Crose-references: EMBL:X85315; NID:g736205; PIDN:CAA59664.1; PID:g736207
A;Experimental source: isolate patient Licheri-3'90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, submitted to the EMBL Data Library, March 1995 A;Reference number: 853112 A;Accession: 853272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
A;ACCEBBAAN... DNA
A;Molecule type: DNA
A;Residues: 1-212 <LAI>
A;Cross-references: EMBL:X85296; NID:g736137; PIDN:CAA59622.1; PID:g736139
A;Cross-references: isolate patient Chighine-2'86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ১
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र्
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                             ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Superfamily: hepatitis B virus core antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          190
                                                                                                                                                                                                                                                                                                                                                                                                                130
                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSPRRRRSOSPRRRRSOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSPRRRRSQSPRRRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                              PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                 LWFHISCLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPBFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                               PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1035.5; DB Pred. No. 5.4e-82;
                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                               A.; Balestrieri, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-Aug-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B virus (isolate antigen; pre-C/C
                                                                                                                                                                                                                                             B virus (isolate patient Chighine-2'86) antigen; pre-C/C antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ې</u>
                                                                                                                                                                                  #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          patient Licheri-3'90)
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26-Aug-1999
                                                                                                                                                                                  26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189
                                                                                                                                                                                                                                                                                                                                                                                                                       189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
S53274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Gene: C
                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Genetics:
                                                                                                                                                              ક
                                                                                                                                                                                                   밁
                                                                  밁
                                                                                                Ś
                                                                                                                                   β
                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             130
                                 193
                                                                  130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                   15
                                                                                                                                                                                                                                    13
                                                                                                                                    75
                                                                                                                                                                  73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               195;
               PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                       196;
```

```
A;Gene: C;Superfamily: hepatitis B virus core antigen C;Superfamily: hepatitis B virus core protein C;Keywords: alternative initiators; core protein C;Keywords: alternative initiators; core protein E;1-29/Domain: signal sequence #status predicted <SIG> F;30-212/Product: core antigen #status predicted <CAG> F;30-178/Product: e antigen #status predicted <EAG> F;179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e antigen precursor / core antigen - hepatitis B virus (isolate N;Alternate names: HBe antigen precursor / HBc antigen; pre-C/C N;Contains: core antigen; e antigen c.Species: hepatitis B virus, HBV A;Variety: isolate patient Giordo'84 C;Date: 08-0ul-1995 #sequence_revision 03-Aug-1995 #text_change C;Accession: S53274 R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, A. submitted to the EMBL Data Library, March 1995 submitted to the EMBL Data Library, March 1995
                                                                                                                                                                                                                                                                                                                                                                                                                            C;Superfamily: hepatitis B virus core antigen
C;Keywords: alternative initiators; core protein
C;Keywords: alternative initiators; core protein
C;Keywords: signal sequence #status predicted <SIG>
F;1-29/Domain: signal sequence #status predicted <CAG>
F;30-212/Product: core antigen #status predicted <EAG>
F;30-178/Product: e antigen #status predicted <EAG>
F;179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: DNA
A;Residues: 1-212 <LAI>
A;Cross-references: EMBL:X85316; NID:g736208; PIDN:CAA59666.1; PID:g736210
A;Experimental source: isolate patient patient Giordo'84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Reference number: S53112
A; Accession: S53274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFPPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWPHISCLTPGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILLTLPETTVVRRRGRSPRRRT
                              LWFHISCLTPGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPBTTVVRRRGRSPRRRT 192
                                                                                                                                     EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL 132
                                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                               PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                            EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90.1%;
                                                                                                                                                                                                                                                                                                                                                       90.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1034.5; DB Pred. No. 6.6e-82;
                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    212
                                                                                                                                                                                                                                                                                                                              Score 1034.5; DB
Pred. No. 6.6e-82;
0; Mismatches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - ASRDLVVSYVNTNMGLKFKQL
                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                   ν.
                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          patient Giordo'84)
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                   Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    72
                                                                                                                       129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AECP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲
                                                                                                                                                                                                                                                                                                                                         ۲
```

```
C;Superfamily: hepatitis B virus core antigen C;Keywords: alternative initiators; core protein F;1-29/Domain: signal sequence #status predicted P;30-212/Product: core antigen #status predicted
                                                                                                                                                                                                                                                                                                           e antigen precursor / core antigen - hepatitis B virus (isolate patient Flo. N,Alternate names: HBe antigen precursor / HBc antigen; pre-C/C antigen N;Contains: core antigen; e antigen C;Species: hepatitis B virus, HBV A;Variety: isolate patient Plore'85 C;Date: 08-Jul-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999
                                                                                                                 A;Molecule type: DNA
A;Residues: 1-212 <LAI>
A;Cross-references: EMBL:X85307; NID:g736175; PIDN:CAA59646.1;
A;Experimental source: isolate patient Flore'85
                                                                                                                                                                                                                                                       C;Accession: S53251
R;Lai, M.B.; Mazzoleni, A.P.; Porru,
submitted to the EMBL Data Library, !
                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
S53251
                                                                                                                                                                                                                    A; Reference number: $53112
A; Accession: $53251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Superfamily: hepatitis B virus core antigen
C;Keywords: alternative initiators; core protein
F;1-29/Domain: signal sequence #status predicted <SIG>
F;30-212/Product: core antigen #status predicted <CAG>
F;30-176/Product: e antigen #status predicted <EAG>
F;30-176/Product: e antigen #status predicted <EAG>
F;10-179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: EMBL:X85256; NID:g736050; PIDN:CAA59519.1; PID:g736052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-212 <LAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, submitted to the EMBL Data Library, March 1995 A;Reference number: S53112 A;Accession: S53163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Variety: isolate patient Vittorina'92
C;Dariety: 08-Jul-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e antigen precursor / core antigen - hepatitis B virus (isolate patient Vittorina'92)
N;Alternate names: HBe antigen precursor / HBc antigen; pre-C/C antigen
N;Contains: core antigen; e antigen
C;Species: hepatitis B virus, HBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                               Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Accession: S53163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LMFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EHCSPHHTALRQAILCWGELMTLATWVGVNLEDDEFRGDASRDLVVSYVNTNWGLKERQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSPRRRRSOSPRRRRSOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHCSPHHTALRQAILCWGELWTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVKDLLSTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90.1%;
96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1034.5;
Pred. No. 6.66
                                                                                                                                                                                                                                                          March 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    212
                                                                                                                                                                                                                                                                              A.; Balestrieri, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.6e-82;
                        <SIG>
      ćΩG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ν
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                              PID: 9736177
                                                                                                                                                                                                                                                                                                                                                                                                    patient Flore'85)
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <BCP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ۳
```

```
밁
                                                                                                                                                                                                                                                                                               C/Superfamily: hepatitis B virus core antigen
C/Keywords: alternative initiators; core protein
C/Keywords: alternative initiators; core protein
F/1-29/Domain: signal sequence #status predicted <SIG>
F/30-212/Product: core antigen #status predicted <CAG>
F/30-178/Product: e antigen #status predicted <EAG>
F/3179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
    밁
                               S
                                                                                            Ś
                                                                                                                           밁
                                                                                                                                                       δ
                                                                                                                                                                                        밁
                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Accession: 520...
R;Iai, M.E.; Mazzoleni, A.P.; Balestrieri, A., ...
submitted to the EMBL Data Library, March 1992
submitted to the EMBL of HBV genomes isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:X65257; NID:g59429; PIDN:CAA46350.1; A;Experimental source: subtype ayw, patient C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Variety: subtype ayw, patient C
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change
C;Accession: S20746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 12
S20746
                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-212 < LAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N;Contains: core antigen; e antigen
C;Species: hepatitis B virus, HBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e antigen precursor / core antigen - hepatitis B virus
N;Alternate names: HBe antigen precursor / HBc antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A/Accession: S20746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;30-178/Product: e antigen \#status predicted <EAG>F;179-212/Domain: carboxyl-terminal propeptide \#link EAG \#status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                               ;Genetics:
                                                                                                                                                                                                                                                     Matches 195;
                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
   190
                                  193
                                                              130
                                                                                              133
                                                                                                                                                                                                                                                                   Local
                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                           73
                                                                                                                                                                                        15
                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                      LWPHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                     EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFDSVRDLLDTASALYRBALESP
                   PSPRRRRSQSPRRRRSQSREPQC 215
                                                      WFHISCLIFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRSPRRRT
                                                                                                                 EHCSPHHTALROATLCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFROL
PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PSPRRRRSQSPRRRRSQSRBPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PSPRRRRSOSPRRRRSOSRESOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHCSPHHTALROAILCWGDLTTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNNGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFPPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                195;
                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                              89.9%;
96.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89.9%;
96.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; Score 1031.5;
; Pred. No. 1.2e.
1; Mismatches
                                                                                                                                                                                                                                               Score 1031.5;
Pred. No. 1.2e.
1; Mismatches
212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       215
                                                                                                                                                                                                                                                            1.2e-81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .2e-81;
                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ν
,.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (subtype
                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             from patients with HBsAg negative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Porru,
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID:g59431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ayw, patient
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-Aug-1999
                                                                                                                                                                                                                                             <u>ლ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                        189
                                                                                     192
                                                                                                                   129
                                                                                                                                                                                                            72
                                                                                                                                                                              74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                          <ECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <ECP>
                                                                                                                                                                                                                                           ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲;
```

```
e antigen precursor / core antigen - hepatitis B virus (isolate patient Garrucciu'90)
N,Alternate names: HBe antigen precursor / HBc antigen; pre-C/C antigen
N;Contains: core antigen; e antigen
C;Species: hepatitis B virus, HBV
A;Variety: isolate patient Garrucciu'90
C;Date: 08-Jul-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999
C;Accession: S53159
R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, A.
submitted to the EMBL Data Library, March 1995
A;Accession: S53112
A;Accession: S53112
A;Accession: S53112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene:
C;Superf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: DNA
A;Rolecule type: DNA
A;Residues: 1-212 <LAI>
A;Cross-references: EMBL:X85272; NID:g736044; PIDN:CAA59563.1; PID:g736046
A;Cross-references: isolate patient Garrucciu'90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Superfamily: hepatitis B virus core antigen
C;Keywords: alternative initiators; core protein
C;Keywords: alternative initiators; core protein
C;Keywords: alternative initiators; core protein
F;1-29/Domain: slignal sequence #status predicted <SIG>
F;30-212/Product: core antigen #status predicted <EAG>
F;30-178/Product: e antigen #status predicted <EAG>
F;179-212/Domain: carboxyl-terminal propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          e antigen precursor / core antigen - hepatitis B virus (isolate patient Ferm N;Alternate names: HBe antigen precursor / HBc antigen; pre-C/C antigen N;Contains: core antigen; e antigen C;Species: hepatitis B virus, HBV A;Variety: isolate patient Ferracuti-3'91 A;Variety: isolate patient Ferracuti-3'91 A;Variety: 08-011-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999 C;Date: 08-011-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999 A;Variety: 08-011-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999 A;Variety: 08-011-1995 #sequence_revision 03-Aug-1995 #text_change 26-Aug-1999 A;Variety: 08-011-1995 #sequence_revision 03-Aug-1995 #sequence_revision 03-Aug-1995 #sext_change 26-Aug-1999 A;Variety: 08-011-1995 #sequence_revision 03-Aug-1995 #sext_change 26-Aug-1995 A;Variety: 08-011-1995 A;Variety: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                 A;Molecule type: DNA
A;Residues: 1-212 <LAN1>
A;Residues: 1-212 <LAN1>
A;Residues: 1-212 <LAN1>
A;Cross-references: EMBL:X85286; NID:g736101; PIDN:CAA59600.1; PID:g736103
A;Experimental source: isolate patient Ferracuti-3'91
C;Genetics:
A;Gene: C
C;Guperfamily: hepatitis B virus core antigen
C;Keywords: alternative initiators; core protein
C;Keywords: alternative initiators; core protein
F;10-29/Domain: signal sequence #status predicted <CAG>
F;30-178/Product: core antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <CAG>
F;30-178/Product: e antigen #status 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Accession: S53200
R;Lai, M.E.; Mazzoleni, A.P.; Porru, A.; Balestrieri, A.
submitted to the EMBL Data Library, March 1995
A;Reference number: S53112
A;Accession: S53200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTVQASKLCLGWLWGMDIDPYKSFGATVELLSFLPSDFFFSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                               carboxyl-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89.8%;
95.6%;
89.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1030.5;
Pred. No. 1.5e
3; Mismatches
Score 1030.5;
                                                                                                     propeptide #link EAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.5e-81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
DB
<u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
Length 212;
                                                                                                           #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ferracuti-3'91)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ∠ECP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
```

```
e antigen precursor / core antigen - hepatitis B virus (isolate N;Alternate names: HBe antigen precursor / HBc antigen; pre-C/C N;Contains: core antigen; e antigen
C.Species: hepatitis B virus, HBV
A;Variety: isolate patient Castaa'83
C.Date: 08-U11-1995 #sequence_revision 03-Aug-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: DNA
A;Residues: 1-212 <LAI>
A;Cross-references: EMBL:X85287; NID:g736104; PIDN:CAA59602.1;
A;Experimental source: isolate patient Castaa'83
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Lai, M.E.; Mazzoleni, A.P.;
submitted to the EMBL Data Lib
A;Reference number: S53112
A;Accession: S53202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                         A;Gene: C
(;Superfamily: hepatitis B virus core antigen
C;Superfamily: hepatitis B virus core protein
C;Keywords: alternative initiators; core protein
E;1-29/Domain: signal sequence #status predicted <SIG>
F;30-212/Product: core antigen #status predicted <CAG>
F;30-178/Product: e antigen #status predicted <EAG>
F;179-212/Domain: carboxyl-terminal propeptide #link E:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Accession: S53202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    853202
                                                                                         5
                                                                                                                           밁
                                                                                                                                                        Ś
                                                                                                                                                                                          밁
                                                                                                                                                                                                                       Ş
                                                           맑
닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity Matches 195; Conserva
                                                                                                                                                                                                                                                                            Best
                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133
                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
 190
                              193
                                                                                            133
                                                                                                                                                                                            15
                                                                                                                                                                                                                            13
                                                                                                                            75
                                                                                                                                                             73
                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LWFH18CLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSRGSQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                  LWFHISCLTFGRETVIEYLVSFGVWIRTDPAYRDPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                          EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                            PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRALLDTASALYREALESP
                                                                                                                                                                                                             PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                             LWFHISCLTPGRETVIBYLVSPGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT
                                                                                                                            EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----
                                PSPRRRRSQSPRRRRSQSREPQC
PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                             195;
                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96.1%;
                                                                                                                                                                                                                                                                           89.8%;
96.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P.; Porru, A.; Balestrieri,
Library, March 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 1.5e-81;
1; Mismatches 2
                                                                                                                                                                                                                                                                ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        212
                                                                                                                                                                                                                                                               Score 1030.5; DB Pred. No. 1.5e-81; Mismatches 2
     212
                                                                                                                                                                                                                                                                                                                            predicted <EAG>
propeptide #link EAG #status predicted
                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:g736106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            patient Castaa'83)
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ა
--
                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                      189
                                                                                                        192
                                                                                                                                       129
                                                                                                                                                                      132
                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                     ٠,
```

Search completed: February Job time : 15.2334 secs

w

2003,

721 App 173 App 173 App 607 App 627 App 12 App 12 App 12 App 13 App 633 App 633 App 657 App 657 App 657 App 657 App 657 App 657 App 657 App 657 App 702 App 717 App 717 App

**

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein search, using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pending_Patents_AA_New:*

1: /cgm2_6/ptodata/1/paa/USO6_NEW_COMB.pep:*

2: /cgm2_6/ptodata/1/paa/USO7_NEW_COMB.pep:*

3: /cgm2_6/ptodata/1/paa/USO8_NEW_COMB.pep:*

4: /cgm2_6/ptodata/1/paa/USO8_NEW_COMB.pep:*

5: /cgm2_6/ptodata/1/paa/USO8_NEW_COMB.pep:*

6: /cgm2_6/ptodata/1/paa/USO8_NEW_COMB.pep:*

6: /cgm2_6/ptodata/1/paa/USO8_NEW_COMB.pep:*

7: /cgm2_6/ptodata/1/paa/USO8_NEW_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-890-752A-2
11148
1 MPLSSIFSRIGDPTVQASKL......
                                                           404799 seqs, 80919614 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 February 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                          GenCore version 5.1.3 (c) 1993 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2003, 09:24:27; Search time 17.6045 Seconds (Without alignments) 988.252 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gapext 0.5
                           ФФФФФФФФФФФФФФФ
                      US-10-274-616-1
US-10-274-616-3
US-10-274-616-3
US-10-274-616-3
US-10-274-616-3
US-10-226-007-31
US-10-226-007-616-6
PCT-US02-17536-18
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
US-10-226-007-618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ltd
             Sequence 1, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 6, Appli
Sequence 17, Appli
Sequence 17, Appli
Sequence 17, Appli
Sequence 17, Appli
Sequence 19, Appli
Sequence 19, Appli
Sequence 674, Appli
Sequence 678, App
Sequence 679, Appli
Sequence 679, Appli
Sequence 679, Appli
Sequence 679, Appli
Sequence 679, Appli
Sequence 679, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
Sequence 678, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 1

US-10-274-616-1

Sequence 1, Application US/10274616

Sequence 1, Application US/10274616

GENERAL INFORMATION:

APPLICANT: Birkett, Ashley J.

TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACE PILE REFERENCE: ICC 127.0 4564/88545

CURRENT APPLICATION UNMBER: US/10/274,616

CURRENT FILING DATE: 2002-10-21

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 10/080,299

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION NUMBER: 09/930,915

PRIOR APPLICATION N
RESULT 2
US-10-274-616-4
; Sequence 4, Application US/10274616
; GENERAL INFORMATION;
; APPLICANT: Birkett, Ashley J.
; TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE
; FILE REFERENCE: ICC 127.0 4564/88545
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176
                                                                                                                                                                                              208
                                                                                                                                                                                                                               116
                                                                                                                                                                                                                                                                148
                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity 96.0 hes 182; Conservative
                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                28
                                                                                                                                                                                                                                                                                                                                                                 ш
                                                                                                                                                                                                                                                                                                          CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROLLWFHISCLTFGRETV 147
                                                                                                                                                               SOSRESOC 183
                                                                                                                                                                                     SQSRBPQC 215
                                                                                                                                                                                                                        IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSOSPRRRR
                                                                                                                                                                                                                                           IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTFSSPRRRRSQSBRRRR
                                                                                                                                                                                                                                                                                       CWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNNGLKFROLLWFHISCLTFGRETV
                                                                                                                                                                                                                                                                                                                                                        MDIDPYKSFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                             MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82.9%;
96.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-226-007-721
US-10-226-007-713
US-09-863-054-17
US-10-226-007-607
US-10-226-007-620
US-10-226-007-688
US-10-226-007-723
US-10-226-007-723
US-10-226-007-657
US-10-226-007-657
US-10-226-007-686
US-10-226-007-696
US-10-226-007-697
US-10-226-007-727
US-10-226-007-727
US-10-226-007-727
US-10-226-007-727
US-10-226-007-727
US-10-226-007-727
                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                       Score 951.5; DB b;
Pred. No. 7.4e-62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VACCINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
```

<u>ن</u>

Gaps

۳.

175

115

60 87 Result No.

Minimum DB Maximum DB

Sequence:

Š

protein -

Database

```
Sequence 2, Application US/10274616

GENERAL INFORMATION:
APPLICANT: Birkett, Ashley J.
TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE
FILE REFERENCE: ICC 127.0 4564/88545
FULE REFERENCE: ICC 127.0 4564/88545
CURRENT APPLICATION NUMBER: US/10/274,616
CURRENT FILING DATE: 2002-10-21
PRIOR APPLICATION NUMBER: 09/930,915
PRIOR PILLNG DATE: 2001-08-15
PRIOR PILLNG DATE: 2001-08-15
PRIOR PILLNG DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; SEQ ID NO 4

; LENGTH: 183

; TYPE: PRT

; ORGANISM: Hepatitis B virus

US-10-274-616-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-274-616-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
                                                                                                          밁
                                                                                                                                      Ś
                                                                                                                                                                                  밁
                                  밁
                                                                    ð
                                                                                                                                                                                                                হ
                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Hepatitis B virus
US-10-274-616-2
 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 176; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 81.2%;
Best Local Similarity 93.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/10/274,616
CURRENT FILING DATE: 2002-10-21
PRIOR APPLICATION NUMBER: 09/930,915
PRIOR FILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 10/080,299
PRIOR FILING DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 87
                                                                                                                                                                                                                                                      Query Match 80.1%;
Best Local Similarity 93.2%;
Matches 177; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn version 3.1 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        116 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148 IBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     208
                                116 LEYLVSPGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRRTPSPRRRRSQSPRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
206 RRSQSREPQC 215
                                                                                                                                              88
                                                                                                                                                                                                         28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    μ
                                                                                                                                                                                  1 MDIDPYKEFGATVELLSPLPSDPFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOSREPOC 215
                                                          IBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR---RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                               CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROLLWFHISCLTFGRETV 147
                                                                                                            CWGELMTLATWVGNNLQDP-----ASRDLVVNYVNTNWGLKIRQLLWFHISCLTFGRETV 115
                                                                                                                                                                                                                                                                                                                                                                                     165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 932.5; DB 6
Pred. No. 1.8e-60;
5; Mismatches 2
                                                                                                                                                                                                                                                        Score 919.5; DB 6
Pred. No. 1.5e-59;
3; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 6;
                                                                                                                                                                                                                                                                                              DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ν
--
                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                              Length 185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ت</u>
                                                                                                                                                                                                                                                              7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                'n
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-274-616-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-274-616-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                    ; TYPE: PRT ; ORGANISM: Hepatitis B virus US-10-226-007-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-226-007-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3, Application US/10274616
GENERAL INFORMATION:
APPLICANT: BLIKEGU, ABBILEY J.
TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE
FILE REFERENCE: ICC 127.0 4564/88545
CURRENT APPLICATION UNMERR: US/10/274,616
CURRENT FILING DATE: 2002-10-21
CURRENT FILING DATE: 2002-10-21
  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79.4%;
best Local Similarity 92.6%;
Matches 176; Conservariari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn version 3.1 SEQ ID NO 3
                                    Query Match
Best Local Similarity
Matches 170; Conserv
                                                                                                                                                                         SOFTWARE: PatentIn version 3.1
SEQ ID NO 31
LENGTH: 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 31, Application US/10226007 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 09/930,915
PRIOR FILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 10/080,299
                                                                                                                                                                                                                              TITLE OF INVENTION: Compositions and Therapeutic Methods for Viral Infection FILE REFERENCE: 5005.01

CURRENT APPLICATION NUMBER: US/10/226,007

CURRENT FILING DATE: 2002-11-15

PRIOR APPLICATION NUMBER: US 60/313,883

PRIOR FILING DATE: 2001-08-21

NUMBER OF SEQ ID NOS: 1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 87
                                                                                                                                                                                                                                                                                                                                                APPLICANT: Zavitz, Kenton
APPLICANT: Hobden, Adrian
TITLE OF INVENTION: Composi
                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Myriad Genetics, APPLICANT: Morham, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
ORGANISM: Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRKRDRGRSPRRTPSPRRRPSQSPRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176 RRSQSRESQC 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 IEYLVSFGVWIRTPPAYRPPNAPILSTLÞETTVVRR--RGRSPRRTFSPRRRRSQSPRR 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          206 RRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88 CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNNGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RRSQSRESQC 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CWGELWTLATWVGNNLEDP-----ASRDLVVNYVNTNVGLKIRQLLWFHISCLTEGRETV
                                        Conservative
                                                           78.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 911.5; DB 6;
Pred. No. 5.8e-59;
                                          8
                                          Score 901.5; DB 6
Pred. No. 3.1e-58;
8; Mismatches 5
                                                                               DB 6;
                                              <u>ა</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                              Indels
                                                                                   Length
                                                                                     183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7;
                                              ت
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
```

۲,

```
APPLICANT: BIRKET, Ashley J.

TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE
FILE REFERENCE: ICC 127.0 4564/88545
CURRENT APPLICATION NUMBER: US/10/274,616
CURRENT EILING DATE: 2002-10-21
PRIOR APPLICATION NUMBER: 09/930,915
PRIOR FILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 10/080,299
PRIOR PILING DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 87
NUMBER OF SEQ ID NOS: 87
SEQ ID NO 6
1.ENGTHAP
                                                                                                                                                                                                                                       RESULT 7
PCT-US02-17536-17
                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT
; ORGANISM: Spermophilus variegatus
US-10-274-616-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 6
US-10-274-616-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                   Sequence 17, Application PC/TUS0217536 GENERAL INFORMATION:
                 APPLICANT: Holoshitz, Joseph
APPLICANT: Ling, Song
TITLE OF INVENTION: Methods and Compositions for the Treatment of Diseases Associated
TITLE OF INVENTION: Signal Transduction Aberrations
FILE REFERENCE: UM-07135
CURRENT APPLICATION NUMBER: PCT/US02/17536
CURRENT APPLICATION NUMBER: PCT/US02/17536
PRIOR APPLICATION NUMBER: 60/295,691
PRIOR APPLICATION NUMBER: 60/295,691
PRIOR FILING DATE: 2001-06-04
NUMBER OF SEQ ID NOS: 36-04
NUMBER OF SEQ ID NOS: 36-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 65.6 Matches 143; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6, Application US/10274616 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 217
                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                   120 NTWGLKVROTLWFHLSCLTFGGHTVQEFLVSFGVWIRTPAPYRPPNAPILSTLPEHTVIR
                                                                                                                                                                                                                                                                                                                                                                                                              123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 148
                                                                                                                                                                                                                                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               w
                                                                                                                                                                                                                                                                                                                                                                                       TNMGLKERQLLWEHISCLTEGRETVIEYLVSEGVWIRTPDAYRDPNADILSTLPETTVVR 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LSSIFSRIGDPTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTAS 62
                                                                                                                                                                                                                                                                                                       RRGGSRAARSPRRRTPSPRRRRSQSPRRRRSQSPASNC
                                                                                                                                                                                                                                                                                                                            RRG-----RSPRRRTPSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                     ALYBEBLTGREHCSPHHTAIRQALVCWEBLTRLITWMSENTT----EBVRRIIVDHVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVN 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LCLVFACVPCPTVQASKLCLGWLWDWDIDPYKBFGSSYQLLNFLPLDFFPDLNALVDTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSGPRRRRSGSPRRRR 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOSRESOC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CWGELMSLATWVGVNLED-----QASRDLVVRYVNDHMGIKFRQLLWFHISCLTFGRDTV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IEYLVSPGVWIRTPPPYRPPNAPILSTLPETTVVRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65.6%; Score 754.5; 65.6%; Pred. No. 1.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .5e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 6; Length 217;
                                                                                                                                                                                                                                                                                                     217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                        US-10-274-616-5
                                                                                                                                                                              문
                                                                                                                                                                                                          S
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                            RESULT 9
                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCT-US02-17536-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
Sequence 5, Application US/10274616
GENERAL INFORMATION:
APPLICANT: Birkett, Ashley J.
TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE
FILE REPERENCE: ICC 127.0 4564/88545
CURRENT APPLICATION NUMBER: US/10/274,616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT-US02-17536-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 17
LENGTH: 169
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                               Matches 141;
                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                            121
                                                                                                                                                                                                            135
                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                               Conservative
```

```
; FEATURE:
; OTHER INFORMATION: Synthetic PCT-US02-17536-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: PCT/US02/17536
CURRENT FILING DATE: 2002-01-04
PRIOR APPLICATION NUMBER: 60/295,691
PRIOR FILING DATE: 2001-06-04
NUMBER OF SEQ ID NOS: 36
SOFTMARE: Patentin version 3.1
SEQ ID NO 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 18, Application PC/TUS0217536 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 87.7%;
Matches 142; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Holoshitz, Joseph
APPLICANT: Ling, Song
TITLE OF INVENTION: Methods
TITLE OF INVENTION: Signal
FILE REFERENCE: UM-07135
                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 169
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence
                                                                                                                                                                                            28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
HISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLP
                      FHISCLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLP 176
                                                                                                          CWGELMTLATWVGVNLED-PBERGD------ASRDLVVSYVNTNMGLKERQLLW 134
                                                                                                                                                             MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDNASALYREALESPEHCSPHHTALRQAIL 60
                                                                           CWGELWILATWVGGNLEDHKDILEDERAAVDTYCVDPISRDLVVSYVNTNWGLKFRQLLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLP 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLP 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CWGELMTLATWVGGNLEDHKDLLEQKRAAVDTYCVDFISRDLVVSYVNTNNGLKFRQLLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CWGBLATTATWVGVNLEDP----EFRGDA-----SRDLVVSYVNTNMGLKFRQLLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MDIDPYKBFGATVELLSFLPSDFFPSVRDLLDNASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                 62.9%; Score 722.5; DB 1;
87.0%; Pred. No. 2.6e-45;
Vative 1; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Joseph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and Compositions for the Treatment of Diseases Associated Transduction Aberrations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 722.5; DB : Pred. No. 2.6e-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٠,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                            Length 169;
                                                                                                                                                                                                                                                 Indels 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169;
                                                                                                                                                                                                                                               Gaps
                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
US-09-863-054-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 21, Application US/09863054
GENERAL INFORMATION:
APPLICANT: Chisari, Francis V.
TITLE OF INVENTION: Peptides for Inducing Cytotoxic T
Lymphocyte Responses to Hepatitis B Virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -10-274-616-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT FILING DATE: 2002-10-21
PRIOR APPLICATION NUMBER: 09/930,915
PRIOR FILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 10/080,299
PRIOR PILING DATE: 2002-02-21
NUMBER OF SEQ ID NOS: 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 183
TYPB: PRT
ORGANISM: Marmota monax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116 QEFLVSFGVWIRTPAPYRPPNAPILSTLPEHTVIRRRGGARASRSPRRRTPSPRRRRSQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 MDIDPYKEFGATVELLSFLÞSDFFFSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
mes 124; Conserv
                                                                                                          PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/935,898
FILING DATE: 26-AUG-1992
APPLICATION NUMBER: US 08/024,120
FILING DATE: 26-FEB-1993
APPLICATION NUMBER: US 08/396,283
FILING DATE: 27-FEB-1995
APPLICATION NUMBER: US 08/463,486
FILING DATE: 05-UN-1995
                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTMARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/863,054
FILING DATE: 21-Msy-2001
CLASSIFICATION: <Unknown>
NAME: LOCKYEY, Jean M.
REGISTRATION NUMBER: 44,879
REFERENCE/DOCKET NUMBER: 014740-000421US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MDIDPYKEPGSSYQLLNPLPLDPPPDLNALVDTATALYBEELTGREHCSPHHTAIRQALV 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRRRRSQ 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRG-----RSPRRRTPSPRRRRSQS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CWDELTKLIAWMSSNITSEQV-----RTIIVNHVNDTWGLKVRQSLWFHLSCLTFGQHTV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRRRRSQ 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57.6%; Score 661; DB 6; 66.3%; Pred. No. 7.8e-41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
```

```
FILE REFERENCE: 15966-543 CON
CURRENT APPLICATION NUMBER: US/10/218,140
CURRENT FILING DATE: 2002-08-12
PRIOR APPLICATION NUMBER: 09/540,763
PRIOR RILING DATE: 2000-03-30
PRIOR RELICATION NUMBER: 60/127,728
PRIOR FILING DATE: 1999-04-05
PRIOR APPLICATION NUMBER: 60/127,636
PRIOR FILING DATE: 1999-04-02
PRIOR APPLICATION NUMBER: 60/127,607
PRIOR APPLICATION NUMBER: 60/127,607
PRIOR APPLICATION NUMBER: 60/127,607
PRIOR FILING DATE: 1999-03-31
NUMBER OF SEQ ID NOS: 6322
SOFTWARE: CULTANALOT Version 1.0
SEQ ID NO 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: peptide
SEQUENCE DESCRIPTION: SEQ ID NO: 21:
US-09-863-054-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Homo sapiens
US-10-218-140-1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-218-140-1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 11
                                                                                                                                                                                                                                                                                RESULT 12
US-09-863-054-19
                                                                                                                                                                                                                                                                                                                                                            뭉
                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1758, Application US/10218140 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 20; Conserv
                                                                                                                                                                          Sequence 19, Application US/09863054
GENERAL INFORMATION:
APPLICANT: Chisari, Francis V.
TITLE OP INVENTION: Peptides for Inducing Cytotoxic T
Lymphocyte Responses to Hepatitis B Virus
NUMBER OF SEQUENCES: 57
                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Leach, Martin D.
APPLICANT: Shinkets, Richard A.
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES AND POLYPEPTIDES
TITLE OF INVENTION: ENCODED THEREBY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO: 21:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152 VSFGVWIRTPPAYRPPNAPI 171
                                                                                                                                                                                                                                                                                                                                                        1 VSFGVWIRTPPAYRPPNAPI 20
                                                                                                                                                                                                                                                                                                                                                                                                                               Match 9.9%;
Local Similarity 50.0%;
les 28; Conservative
ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                  CORRESPONDENCE ADDRESS
                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (415) 576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENGTH: 20 amino acids
                                                      COUNTRY: USA
                                                                          STATE: California
                                                                                            CITY: San Francisco
                                                                                                               ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 114; DB 5; pred. No. 0.044;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 113.5; DB Pred. No. 0.51; 7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              312;
                                                                                                                                                                                                                                                                                                                                                                                                                                         13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ψ
```

```
APPLICANT: Morham, Scott
APPLICANT: Zavitz, Kenton
APPLICANT: Tavitz, Kenton
APPLICANT: Hobden, Adrian
TITLE OF INVENTION: Compositions and Therapeutic Methods for Viral Infection
FILE REFERENCE: 5005.01
CURRENT APPLICATION NUMBER: US/10/226,007
CURRENT FILING DATE: 2002-11-15
PRIOR APPLICATION NUMBER: US 60/313,883
PRIOR APPLICATION NUMBER: US 60/313,883
PRIOR APPLICATION STATE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURCE SOURC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 13
US-10-226-007-714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-863-054-19
                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 9.6%; Score 110; DB 5; Length 20; Best Local Similarity 100.0%; Pred. No. 0.085; Matches 20; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 714, Application US/10226007 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Myriad Genetics, Inc. APPLICANT: Morham, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 19: SEQUENCE CHARACTERISTICS:
                                         149 BYLVSFGVWIRTPPAYRPPN 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132 LLWPHISCLTFGRETVIEYL 151
                                                                                                                                                                                                 Local Similarity
            _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLWFHISCLTFGRETVIEYL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: peptide
SEQUENCE DESCRIPTION: SEQ ID NO: 19:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Lockyer, Jean M.
REGISTRATION NUMBER: 44,879
REFERENCE/DOCKET NUMBER: 014740-000421US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPAX: (415) 576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 08/396,283
FILING DATE: 27-FEB-1995
APPLICATION NUMBER: US 08/463,486
FILING DATE: 05-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: Lockyer, Jean M.
BYLVSFGVWIRTPPPYRPPN 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 20 amino acids
TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 07/935,898
FILING DATE: 26-AUG-1992
APPLICATION NUMBER: US 08/024,120
FILING DATE: 26-FEB-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/09/863,054
FILING DATE: 21-May-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                            Conservative
                                                                                                                                                                                             9.64;
                                                                                                                                            0;
                                                                                                                                            Score 110; DB 6;
Pred. No. 0.085;
0; Mismatches 1
                                                                                                                                                                                                                      Length 20;
                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,,</u>
```

Ş 밁

밁 S

Search completed: February Job time : 17.6045 secs

3, 2003, 09:35:00

```
GENERAL INFORMATION:

APPLICANT: Myriad Genetics, Inc.

APPLICANT: Myriad Genetics, Inc.

APPLICANT: Myriad Genetics, Inc.

APPLICANT: Zavitz, Kenton

APPLICANT: Eavitz, Kenton

APPLICANT: Hobden, Adrian

TITLE OF INVENTION: Compositions and Therapeutic Methods for Viral Infection

FILE REFERENCE: 5005.01

CURRENT APPLICATION NUMBER: US/10/226,007

CURRENT FILING DATE: 2002-11-15

PRIOR APPLICATION UNMBER: US 60/313,883

PRIOR FILING DATE: 2001-08-21

NUMBER OF SEQ ID NOS: 1673

SOFTWARE: PatentIn version 3.1

SEQ ID NO 679

LENGTH: 20

TYPE: PRT
      片
                                              Ś
                                                                                                                                                                               ; ORGANISM: Hepatitis B virus US-10-226-007-679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
US-10-226-007-679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Hepatitis B virus US-10-226-007-646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-226-007-646
                                                                                   Query Match 9.5%; Score 109; Best Local Similarity 95.0%; Pred. No. 0. Matches 19; Conservative 0; Mismatche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 9.5%;
Best Local Similarity 95.0%;
Matches 19; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn version 3.1
SEQ ID NO 646
LENGTH: 20
TYPB: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 679,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 646, Application US/10226007 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/10/226,007
CURRENT FILING DATE: 2002-11-15
PRIOR APPLICATION NUMBER: US 60/313,883
PRIOR FILING DATE: 2001-08-21
NUMBER OF SEQ ID NOS: 1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Myriad Genetics,
APPLICANT: Morham, Scott
APPLICANT: Zavitz, Kenton
APPLICANT: Hobden, Adrian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Hobden, Adrian
TITLE OF TRENTION: Compositions and Therapeutic Methods for Viral Infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: 5005.01
                                           154 FGVWIRTPPAYRPPNAPILS 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157 WIRTPPAYRPPNAPILSTLP 176
1 FGVWIRTPPPYRPPNAPILS 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 WIRTPPPYRPPNAPILSTLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/10226007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 109;
Pred. No. 0.
                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                          DB 6; Length 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .1;
88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 20
                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                              Gaps
                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
```

```
Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein -
                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein search, using sw model
                                                                                                                                                BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              February 3, 2003, 09:23:57; Search time 153.571 Seconds (without alignments)
902.626 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4569144 seqs, 644733110 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MPLSSIFSRIGDPTVQASKL......RRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-890-752A-2
1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pending_Patents_AA_Main: *
                                                                                                                              'Cgn2_6/ptodata/1/paa/PCTUS_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOO_COMB.pep:*
'Cgn2_6/ptodata/1/paa/USOOO_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4569144
```

ማ መ ች ພ ស ጕ	Result No.
1148 1048.5 1048.5 1048.5 1048.5 1048.5	Score
100.0 91.3 91.3 91.3 91.3	Query e Match Length DB ID
215 212 212 212 212 212	ength D
22 US-09-890-752A-2 21 US-09-791-537-6815 22 US-09-948-616-114 26 US-10-243-739-54 26 US-10-244-065-54 1 PCT-US97-15500-3	ID
Sequence 2, Appli Sequence 6815, Ap Sequence 114, App Sequence 54, Appl Sequence 54, Appli Sequence 3, Appli	Description

Query Match 100.0%; Score 1148; DB 22; Best Local Similarity 100.0%; Pred. No. 9.1e-110; Matches 215; Conservative 0; Mismatches 0;

DB 22; Length 215; Indels

0

Gaps

0

ALIGNMENTS

```
Sequence 2, Application US/09890752A

Sequence 2, Application US/09890752A

Sequence 2, Application US/09890752A

Sequence 2, Application Sector

APPLICANT: Hidt, Eberhard

APPLICANT: Hofschneider, Peter

TITLE OF INVENTION: Particles for Gene Therapy

FILE REFERENCE: 107070-120 (VOS-013)

CURRENT APPLICATION NUMBER: US/09/890,752A

CURRENT FILING DATE: 2001-08-03

PRIOR APPLICATION NUMBER: PCT/DE00/00363

PRIOR APPLICATION NUMBER: DE 199 04 800.2

PRIOR FILING DATE: 1099-02-05

NUMBER OF 58Q ID MOS: 21

SOFTWARE: Patentin version 3.1

SEQ ID NO 2

SEQ ID NO 2

FATURE:

OTHER INFORMATION: Fusion protein comprising a HBcAg, a cell-permeability-
OTHER INFORMATION: mediating polypeptide and heterologous binding site RGD

US-09-890-752A-2
US-09-890-752A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 1
US-09-890-752A-2
```

Gaps

۲

74

189 192

```
APPLICANT: Belonomix, Inc.
APPLICANT: Debe, Derek
APPLICANT: Denzer, Joseph
TITLE OF INVENTION: THREE DIMENSIONAL STRUCTURES OF
TITLE OF INVENTION: METHODS OF USE THEREOF
FILE REFERENCE: 261/210
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT FILING DATE: 2001-02-22
NUMBER OF SEQ ID NOS: 153055
SOFTWARE: PATENTIN VERSION 3.0
SEQ ID NO 6815
LENGTH: 212
TYPE: PRT
Sequence 114, Application US/09848616
GENERAL INFORMATION:
APPLICANT: Sebbel, Peter
APPLICANT: Sebbel, Peter
APPLICANT: Bachmann, Martin
APPLICANT: Bachmann, Martin
APPLICANT: Hesot, Alain
APPLICANT: Hechner, Pranziska
TITLE OF INVENTION: Molecular Antigen Array
PILE REFERENCE: 1700.0180002
CURRENT APPLICATION NUMBER: US/09/848,616
CURRENT APPLICATION ON HERE
CURRENT PILING DATE: 2001-05-05
NUMBER OF SEQ ID NOS: 186
SOFTWARE; Patentin Ver: 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      १
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 2
US-09-791-537-6815
                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Hepatitis
US-09-791-537-6815
                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                              ठ
                                                                                                                                                                                                                                                                                                                                                                                       핝
                                                                                                                                                                                                                                             US-09-848-616-114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 6815, Application US/09791537 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 198; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13
                                                                                                                                                                                                                                                                                                                    190
                                                                                                                                                                                                                                                                                                                                                                                                                         133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VNTNMGLKFRQLLWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLÞETTV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ASALYREALESPEHCSPHHTALROAILCWGELWTLATWVGVNLEDPEFRGDASRDLVVSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MPLSSIFSRIGDPTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MPLSSIPSRIGDPTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VRRRGRSPRRRTPSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VRRRGRSPRRRTPSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ASALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSY 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                         PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                            LWFH18CLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       198; Conservative
                                                                                                                                                                                                                                                                                                                                                                                       LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL 129
                                                                                                                                                                                                                                                                                                                    PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91.3%; Score 1048.5; DB
97.5%; Pred. No. 1.8e-99;
Live 0; Mismatches C
                                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF PROTEIN FAMILIES AND FAMILY MEMBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s
V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                               189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-848-616-114
                                                                                                                                                                                 밁
                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; LENGTH: 212
TYPE: PRT
; ORGANISM: Hepatitis B virus
US-10-243-739-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-243-739-54
                    US-10-244-065-54; Sequence 54; A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Bachmann, Martin F.
APPLICANT: Storni, Tazio
APPLICANT: Storni, Tazio
APPLICANT: Storni, Tazio
APPLICANT: Storni, Tazio
APPLICANT: Storni, Tazio
APPLICANT: Lechner, Franziska
APPLICANT: Lechner, Franziska
TITLE OF INVENTION: In vivo Activation of Antigen presenting Cells for Enhancement
TITLE OF INVENTION: Invivo Activation of Antigen presenting Cells for Enhancement
TITLE OF INVENTION: Invivo Activation of Antigen Particles
TILLE REFERENCE: 1700.210001
TURRENT FILING DATE: 2001-09-16
PRIOR APPLICATION NUMBER: 60/318,967
PRIOR APPLICATION NUMBER: 60/318,967
PRIOR APPLICATION NUMBER: 201-09-14
NUMBER OF SEQ ID NOS: 73
SOFTWARE: Patentin version 3.1
SEQ ID NO 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 114
LENGTH: 212
                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 91.3%;
Best Local Similarity 97.5%;
Matches 198; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 54, Application US/10243739
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 212
TYPE: PRT
ORGANISM: Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  190 PSPRERRSQSPRERRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193 PSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           133
                                                                                                                                                                               130
                                                                                                            190
                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                        75
                                                                                                                                                                                                                                                                                                                            15
                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                        73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKICLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EHCSPHHTALROAILCWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL 132
                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                               PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                    LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                      EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                           EHCSPHHTALRQAILCWGELWTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                            PTVQASKLCLGWLWGMDIDPYKEFGATVELLSPLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                   198;
                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                      Application US/10244065
                                                                                                                                                                                                                                                                                                                                                                                               91.3%;
nilarity 97.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Score 1048.5; Pred. No. 1.8e 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                    Score 1048.5; DB Pred. No. 1.8e-99; 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 26;
                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                        5
```

Q.

Gaps

۲,

74 72

129

```
RESULT 6
PCT-US97-15500-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 54
LENGTH: 212
TYPE: PRT
ORGANISM: Hepatitis B virus
US-10-244-065-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                      Sequence 3, Application PC/TUS9715500
GENERAL INFORMATION:
APPLICANT: The General Hospital O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 91.3%;
Best Local Similarity 97.5%;
Matches 198; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Meijerink, Edwin
APPLICANT: Meijerink, Gerad
APPLICANT: Lipowsky, Gerad
APPLICANT: Pumpens, Paul
APPLICANT: Cielens, Indulis
APPLICANT: Renhofa, Regina
TITIE OF INVENTION: Packaging of Immunostimulatory Substances into Virus-like Particl
TITLE OF INVENTION: Method of Preparation and Use
FILE REPERENCE: 1700.0220001
                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US97/15500
PILING DATE: 03-SEP-1997
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 2001-09-14
NUMBER OF SEQ ID NOS: 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: 60/374,145
PRIOR FILING DATE: 2002-04-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/10/244,065
CURRENT FILING DATE: 2002-09-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/318,994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Bachmann,
                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                APPLICANT: The General Hospital Corporation TITLE OF INVENTION: INHIBITION OF VIRAL REPLICATION
                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                      STREET: 2. STREET: 2. Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133 LWFHISCLTFGRETVIEYLVSFGVWIRTPDAYRPDNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                  COUNTRY: USA
ZIP: 02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PSPRRRRSQSPRRRRSQSREPQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTVQASKLCLGMLMGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
            APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Maurer, Patrick
Tissot, Alain
Schwarz, Katrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Storni,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tazio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Martin F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1048.5;
Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .8e-99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 26; Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ű
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۲
S
```

```
문
                                           Ś
                                                                                                                                      ; OTHER INFORMATION: Hepatitis B virus C antigen and e antigen ; OTHER INFORMATION: (HECAG/HBeAg) sequence US-09-705-547-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 7
US-09-705-547-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT-US97-15500-3
                                                                                                                                                                                                                                                                                                           APPLICANT: Matti Sallberg
APPLICANT: Matti Sallberg
APPLICANT: Catharina Hultgren
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN AND
TITLE OF INVENTION: METHODS OF USE THEREOF
FILE REFERENCE: TRIPEP.023AUS
CURRENT APPLICATION NUMBER: US/09/705,547
CURRENT FILING DATE: 2000-11-03
CURRENT FILING DATE: 60/229,175
                                                                           Matches 197;
                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 11, Application US/09705547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 197; Conserv
                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/:
PRIOR FILING DATE: 2000-08-29
NUMBER OF SEQ ID NOS: 15
                                                                                                                                                                                                     TYPE: PRT ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                  LENGTH: 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                193 PSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Fraser, Janis K.
REGISTRATION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 08
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                       13 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFFSVRDLLDTASALYRBALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13 PTVQASKL/CLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 212 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: FILING DATE: 03-SEP CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: 617/542-5070
TELEFAX: 617/542-8906
PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHCSPHHTALROATLCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EHCSPHHTALROAILCWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSOSPRRRRSOSRESOC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                         Similarity
                                                                                                                                                                                                                                                                               FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             200154
                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90.6%;
                                                                                      90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/025,370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           w.
                                                                      Score 1040.5; DB
Pred. No. 1.2e-98;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1040.5; DB Pred. No. 1.2e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08472/705W01
                                                                                                      DB 21; Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212,
                                                                    <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ų.
                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74
                                                                    ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
```

73 EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132

```
APPLICANT: Bionomix, Inc.
APPLICANT: Bionomix, Inc.
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
ITITLE OF INVENTION: METHODS OF USE THEREOF
ITITLE OF INVENTION: METHODS OF USE THEREOF
ITILE REPERENCE: 261/210
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT FILING DATE: 2001-02-22
NUMBER OF SEQ ID NOS: 153055
SOFTWARE: Patentin version 3.0
SEQ ID NO 92352
LENGTH: 212
TYDE: DOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 6
US-09-791-537-92352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT ; ORGANISM: Hepatitis B virus US-09-791-537-92352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
           APPLICANT: MCRIL SAIlberg
APPLICANT: MCRIL SAIlberg
APPLICANT: MCRIL SAIlberg
APPLICANT: MCRIL SAIlberg
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN AND
TITLE OF INVENTION: MCTHODS OF USE THEREOF
FILE REFERENCE: TRIPEP.22AUS2
CURRENT APPLICATION NUMBER: US/09/929,955
CURRENT APPLICATION NUMBER: 09/705,547
PRIOR APPLICATION NUMBER: 09/705,547
PRIOR FILING DATE: 2000-011-03
PRIOR APPLICATION NUMBER: 60/229,175
PRIOR FILING DATE: 2000-08-29
PRIOR APPLICATION NUMBER: 60/225,767
PRIOR APPLICATION NUMBER: 60/225,767
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
PRIOR PILING DATE: 2000-08-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                              RESULT 9
US-09-929-955-11
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 92352, Appl GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                           Sequence 11, Application US/09929955 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 197;
SOFTWARE: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LWFHISCLTEGRETVIEYLVSEGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PSPRERRSQSPRERRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTVQASKLCIGWIWGWDIDPYKBFGATVELLSFLPSDFFPSVRDILDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                            PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EHCSPHHTALRQAILCWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/09791537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1040.5; DB 21;
Pred. No. 1.2e-98;
0; Mismatches 1; II
                                                                                                                                                                                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROTEIN FAMILIES AND FAMILY MEMB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            υ
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
```

```
APPLICANT: Catharina Hultgren
APPLICANT: Catharina Hultgren
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN AND
TITLE OF INVENTION: METHODS OF USE THEREOF
FILE REFERENCE: TRIPER: 23AUSC1
CURRENT APPLICATION NUMBER: US/10/104,966
CURRENT FILING DATE: 2002-03-22
PRIOR APPLICATION NUMBER: 09/705,547
PRIOR FILING DATE: 2000-11-03
PRIOR APPLICATION NUMBER: 09/229,175
PRIOR APPLICATION NUMBER: 09/229,175
PRIOR PILING DATE: 2000-08-29
NUMBER OF SRQ ID NOS: 15
SOFTWARE: FASUSEQ for Windows Version 4.0
SEQ ID NO 11
LENGTH: 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: Hepatitis!
OTHER INFORMATION: (HBCAG/HBei
US-09-929-955-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
US-10-104-966-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                       ; ORGANISM: Artificial Sequence FEATURE; OTHER INFORMATION: Hepatitis F OTHER INFORMATION: (HBCAG/HBcf-10-104-966-11)
                            ঠ
                                                              밁
                                                                                         Ś
                                                                                                                             밁
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 97.0
Matches 197; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 11, Application US/10104966
GENERAL INFORMATION:
APPLICANT: Matti Sallberg
APPLICANT: Catharina Hultgren
                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 212
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133 LWFHI8CLTFGRETVIEYLVSFGVWIRTDPAYRPDNAPILSTLDETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190 PSPRRRRSQSPRRRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              193 PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDILDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13 PTVQASKLCIGMIMGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
 130
                                133
                                                                75
                                                                                              73
                                                                                                                             15
                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LWPHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFROL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPBFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                             PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                  LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPDNAPILSTLPETTVVRRRGRSPRRRT 192
                                                              EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----
                                                                                  EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL 132
197;
                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus C antigen (HBcAg/HBeAg) sequence
                                                                                                                                                                                                                                                                           Hepatitis B virus C antigen and (HBcAg/HBeAg) sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90.6%;
                                                                                                                                                                                                90.6%; Score 1040.5; DB
97.0%; Pred. No. 1.2e-98;
tive 0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1040.5; DB pred. No. 1.2e-98; 0; Mismatches 1
                                                                                                                                                                                                                                  DB 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                       - ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23;
                                                                                                                                                                                                    <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                   æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antigen
                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ر.
د
                                                                                                                                                                                                                                      212;
                                                                                                                                                                                                     <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           189
                                                                        129
           189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۲
```

PSPRRRRSQSPRRRRSQSREPQC 215

뭐

190 PSPRRRRSQSPRRRRSQSRESQC

```
밁
                                               S
                                                                                                                                                   ORGANISM: Hepatitis B virus US-09-791-537-125025
                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 12
US-09-791-537-125025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; FEATURE:
; OTHER INFORMATION: Hepatitis B virus C antigen and e
; OTHER INFORMATION: (HBcAg/HBeAg) sequence
US-60-229-175-11
                                                                                                                                                                                         APPLICANT: Bionomix, Inc.
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
TITLE OF INVENTION: HERBEDIMENSIONAL STRUCTURES OF PROTEIN FAMILIES AND FAMILY MEMBE
TITLE OF INVENTION: METHODS OF USE THEREOF
FILE REPERENCE: 261/210
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT FILING DATE: 2001-02-22
NUMBER OF SEQ ID NOS: 153055
SOFTWARE: Patentin version 3.0
SEQ ID NO 125025
LENGTH: 212
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-60-229-175-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Fas
SEQ ID NO 11
LENGTH: 212
                                                                                               Query Match 90.5%;
Best Local Similarity 96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 125025, Application US/09791537 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 11, Application US/60229175
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Matti Sallberg
APPLICANT: Catharina Hultgren
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN
TITLE OF INVENTION: METHODS OF USE THEREOF
FILE REFERENCE: TRIPEP, 023PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/60/229,175
CURRENT FILING DATE: 2000-08-29
NUMBER OF SEQ ID NOS: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                               13
               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
LWFHISCLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSPRRRRSOSPRRRRSOSRESOC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKERQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFPPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FastSEQ for Windows Version 4.0
                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90.6%; Score 1040.5; DB 97.0%; Pred. No. 1.2e-98;
                                                                            Score 1038.5;
Pred. No. 1.9e.
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                           5; DB 21; Length .9e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      antigen
                                                                                                             212;
                                                                        5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                      ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.
```

```
APPLICANT: Bionomix, Inc.
APPLICANT: Debe, Derek
APPLICANT: Debe, Derek
TITLE OF INVENTION: THEER DIMENSIONAL STRUCTURES OF
FILE REFERENCE: 261/210
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT FILING DATE: 2001-02-22
NUMBER OF SEQ ID NOS: 153055
SOFTWARE: Patentin version 3.0
                                                                                                                                                                                                                 RESULT 14
US-09-791-537-15944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 12, Application US/09718095
GENERAL INFORMATION:
APPLICANT: STUYVER Lieven
APPLICANT: VAN GEYT Caroline
APPLICANT: UB GENDT Sija
TITLE OF INVENTION: New HBV Sequences
FILE REFERENCE: 2551-52
CURRENT APPLICATION UNMBER: US/09/718,095
CURRENT FILING DATE: 2000-11-22
PRIOR APPLICATION NUMBER: EP99870252.6
PRIOR FILING DATE: 1999-12-03
PRIOR APPLICATION NUMBER: US60/169,287
PRIOR FILING DATE: 1999-12-07
                                                                                                                                                                                                                                                                                                                                                         뭥
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 12
; LENGTH: 212
; TYPE: PRT
; ORGANISM: Hepatitis B virus
US-09-718-095-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
US-09-718-095-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                   Sequence 15944, App
GENERAL INFORMATION
SEQ ID NO 15944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                         193
                                                                                                                                                                                                                                                                                                                                                                  133 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLDETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                193 PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13 PTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73
                                                                                                                                                                                                                                                                                                                                                                                                                                      EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                 PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                  PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                              LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 189
                                                                                                                                                                                                                                                                                                                                                                                                                 BHCSPHHTALKQAILCWGBLMTLATWVGVNLBDP----ASRDLVVSYVNTNWGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRDALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LWFHISCLTFGRETVIEYLVSEGVWIRTPPAYRPNAPILSTLESTTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSREPQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                 Application US/09791537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1999-12-07
)S: 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1037.5;
Pred. No. 2.4e-
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .4e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 21;
                                                                                                             ę,
                                                                                                      PROTEIN FAMILIES AND FAMILY MEMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٠.
ت
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲,
```

```
Sequence 47294, Application US/09791537
; GENERAL INFORMATION:
APPLICANT: Bionomix, Inc.
APPLICANT: Bionomix, Inc.
APPLICANT: Bobe, Derek
APPLICANT: Danzer, Joseph
TITLE OF INVENTION: THREE DIMENSIONAL STRUCTURES OF PROTEIN FAMILIES AND FAMILY MEMBE
TITLE OF INVENTION: THREE DIMENSIONAL STRUCTURES OF PROTEIN FAMILIES AND FAMILY MEMBE
TITLE OF INVENTION: METHODS OF USE THEREOF
FILE REFERENCE: 261/210
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT APPLICATION NUMBER: US/09/791,537
CURRENT FILING DATE: 2001-02-22
NUMBER OF SEQ ID NOS: 153055
SOFTWARE: PACENTIN VERSION 3.0
SEQ ID NO 47294
LENGTH: 212
TYPE: PRT
ORGANISM: Hepatitis B virus
US-09-791-537-47294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; LENGTH: 212
; TYPE: PRT
; ORGANISM: Hepatitis B virus
US-09-791-537-15944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
US-09-791-537-47294
Search completed: February 3, Job time: 154.571 secs
                                                                                       5
                                                                                                                      밁
                                                                                                                                                S
                                                                                                                                                                              밁
                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                   á
                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 90.4%; Score 1037.5; DB 21; Length 212; Best Local Similarity 96.6%; Pred. No. 2.4e-98; Matches 196; Conservative 1; Mismatches 1; Indels 5;
                                                                                                                                                                                                                                                                                               Query Match 90.4%; Score 1037.5; DB 21; Length 212; Best Local Similarity 96.6%; Pred. No. 2.4e-98; Matches 196; Conservative 1; Mismatches 1; Indels 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190 PSPRRRRSQSPRRRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                          193 PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73
                                                                                                                                                                              EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDIVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PSPRRRRSQSPRRRRSQSREPQC 215
                                                            PSPRRRRSOSPRRRRSOSRESOC
                  2003, 09:34:08
                                                                 212
                                                                                                                                                                                                                                                                                                         5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
```

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
     1040.5
1970.5
938.5
938.5
938.5
928.5
922.5
922.5
922.5
922.5
7718.5
7718.5
7719.5
7719.5
7719.5
                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Published Applications AA:*

1: /cgn2_6/ptodata/2/pubpaa/USO8 NEW PUB.pep:*

2: /cgn2_6/ptodata/2/pubpaa/USO8 NEW PUB.pep:*

3: /cgn2_6/ptodata/2/pubpaa/USO8 NEW PUB.pep:*

4: /cgn2_6/ptodata/2/pubpaa/USO6 NEW PUB.pep:*

4: /cgn2_6/ptodata/2/pubpaa/USO7 NEW PUB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/USO7 PUBCOMB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/USO7 PUBCOMB.pep:*

7: /cgn2_6/ptodata/2/pubpaa/USO7 PUBCOMB.pep:*

9: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*

10: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*

10: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*

11: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*

12: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*

13: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*

14: /cgn2_6/ptodata/2/pubpaa/USO9 NEW PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein search, using sw model
                                                                                                                                                                                                                                                                                                                                         Match
     85.1
81.3
81.3
80.9
80.9
80.7
80.4
80.4
80.4
80.4
80.4
80.4
80.5
75.2
75.2
75.2
657.3
657.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MPLSSIFSRIGDPTVQASKL......RRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-890-752A-2
1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122226 seqs, 20178551 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 February 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Copyright
                                                                                                                                                                                                                                                                                                                                       Length
   띪
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.3 (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2003, 09:25:53 ; Search time 7.86585 Seconds (without alignments) 551.547 Million cell updates/sec
                                                                      9 9 10 10
                                                                                                                                                                      10
9
                                                                                                                                                                                                                                                     10
                                                                                                                                                                                                                                   10
US-10-209-264-4
US-09-812-862-12
US-09-812-862-16
US-10-068-059-6
US-10-068-059-6
US-10-068-059-6
US-09-916-230-5
US-09-912-862-8
US-09-812-862-8
US-10-068-059-10
US-09-812-862-8
US-09-812-862-8
US-09-812-862-8
US-09-812-862-8
US-09-812-862-8
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
US-09-916-230-6
                                                                                                                                                                                                                                                                                                  US-10-104-966-11
                                                                                                                                                                                                                                                                                                                                       H
                                                                                                                                                                                                                                                                                  US-09-929-955-11
                                                                                                                                                                                                                                                                                                                                                                                      SUMMARIES
                            Sequence 11, Appl
Sequence 4, Appli
Sequence 4, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 9, Appli
Sequence 9, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 8, Appli
Sequence 10, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 7, Appli
                                                                                                                                                                                                                                                                                                                                Description
              Sequence
Sequence
```

ţ.	4.	. <u>4</u> .	42	4	40	(L	38	37	36	35	4	i tu) (J	31	30	22) (27	26	25	24	22	22	21	20
79	79.5	81.5	83	83.5	83.5	85.5	92.5	94.5	99	99	100	100	103	103	104	T05	801	108	109	110	111	111	112	114	114
6.9	6.9	7.1	7.2	7.3	7.3	7.4	8.1		B. 6				9.0	9.0	9.1	9.1	9.4	9.4	9.5		9.7		9.8	9.9	9.9
2799	80	266	15	219	144	123	20	376	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
v	0	10	9	10	10	10	10	10	5	10	10	10	10	10	9	10	10	10	10	10	10	9	50	10	10
US-10-151-736-4	US-09-864-761-35898	US-09-864-761-37015	US-09-466-035-86	US-09-894-018-113	US-09-925-299-1217	US-09-894-018-109	US-09-839-447A-102	US-09-925-301-1399	US-09-839-447A-103	US-09-839-447A-96	US-09-839-447A-109	US-09-839-447A-97	US-09-839-447A-110	US-09-839-447A-108	US-09-466-035-85	US-09-839-447A-98	US-09-839-447A-106	US-09-839-447A-99	US-09-839-447A-100	US-09-839-447A-105	US-09-839-447A-101	US-09-466-035-84	US-09-839-447A-104	US-09-839-447A-111	US-09-839-447A-107
	Sequence 35898, A	Sequence 37015. A	Sequence 86. Appl	113	121		102	1399					Sequence 110, App	Φ		Sequence 98, Appl			2 5	10	e :	84	2	Sequence 111. App	Sequence 107. App

ALIGNMENTS

```
APPLICANT: Matti Sallberg

APPLICANT: Matti Sallberg

APPLICANT: Catharina Hultgren

ITITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN AND

ITITLE OF INVENTION: WETHOOS OF USE THEREOF

FILE REFERENCE: TRIPBE, 23AUSC1

CURRENT PILLING DATE: 2002-03-22

PRIOR APPLICATION NUMBER: 09/705,547

PRIOR PILLING DATE: 2000-11-03

PRIOR PILLING DATE: 2000-08-29

NUMBER OF SEQ ID NOS: 15

SOFTWARE: FRASTSEQ for Windows Version 4.0

SEQ ID NO 11

LENGTH: 212

TYPE: PRI
COCAMISM: Artificial Sequence

FEATURE:

OCHER INFORMATION: (HBCAG/HBEAG) sequence

US-10-104-966-11
                                        Ś
                                                                             밁
                                                                                                       ક
                                                                                                                                                닭
                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 1
US-10-104-966-11
                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 11, Application US/10104966
Patent No. US20020155124A1
GENERAL INFORMATION:
                                                                                                                                                                                                                  Matches 197;
                                          133
         130
                                                                                                                                                                13 PTVQASKLCIGWIWGMDIDPYKBFGATVEILSFLPSDFFPSVRDILDTASALYRBALBSP 72
                                                                                                             73
                                                                                                                                                  15
                  LWPHISCLTFGRETVIEYLVGEGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                      EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
WFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 189
                                                                                                                                        PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP
                                                                  EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL 129
                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                               90.6%;
97.0%;
                                                                                                                                                                                                                0,
                                                                                                                                                                                                                               Score 1040.5;
Pred. No. 2.46
                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                 .4e-95;
                                                                                                                                                                                                                                                DB 9; Length 212;
                                                                                                                                                                                                               1
                                                                                                                                                                                                                Indels
                                                                                                                                                                                                             5
                                                                                                                                                                                                           Gaps
                                                                                                                                          74
```

۲.

밁 S

190

PSPRRRRSQSPRRRRSQSREPQC 215

```
APPLICANT: MALL SALVEY
APPLICANT: CATHARIA HUITGYEN
APPLICANT: CATHARIA HUITGYEN
TITLE OF INVENTION: VACCINES CONTAINING RIBAVIRIN AND
TITLE OF INVENTION: WETHODS OF USE THEREOF
FILE REFERENCE: TRIPEP./3AUS2
CURRENT APPLICATION NUMBER: US/09/929,955
CURRENT PILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 09/705,547
PRIOR PILING DATE: 2000-11-03
PRIOR APPLICATION NUMBER: 60/229,175
PRIOR APPLICATION NUMBER: 60/229,767
PRIOR PILING DATE: 2000-08-29
PRIOR APPLICATION NUMBER: 60/225,767
PRIOR APPLICATION NUMBER: 60/225,767
PRIOR APPLICATION NUMBER: 60/225,767
PRIOR FILING DATE: 2000-08-17
NUMBER OF SEQ ID NOS: 49
SOSTMARE: PASTSEQ for Windows Version 4.0
SEQ ID NO 11
LENGTH: 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 2
US-09-929-955-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; OTHER INFORMATION: Hepatitis B virus C antigen and e antigen ; OTHER INFORMATION: (HBcAg/HBeAg) sequence US-09-929-955-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                           RESULT 3
US-10-209-264-4
                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 11, App
Patent No. US200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                  Sequence 4, Application US/10209264
Publication No. US20030003111A1
GENERAL INFORMATION:
APPLICANT: Ocn, Chong Jin
Lim, Gek Keow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 197; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Matti Sallberg APPLICANT: Catharina Hul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                               Zhao, Yi
Chen, Wei Ning
TITLE OF INVENTION: A MUTANT HUMAN HEPATITIS B VIRAL STRAIN AND
USES THEREOF
CORRESPONDENCE ADDRESS:
ADDRESSEE: Ladda & Parry
STREET: 26 West 61 Street
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSPRERRSQSPRERRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTVQASKLCIGWLWGMDIDPYKEFGATVELLSFLPSDFPFSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSOSPRRRRSOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP-----ASRDLVVSYVNTNMGLKFRQL 129
                                                                                                                                                                                                                                                                                                                                                                                                                   PSPRIRRSQSPRIRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09929955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0136740A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1040.5; DB 10; Length 212; Pred. No. 2.4e-95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-209-264-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 4
US-09-812-862-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:

APPLICATION NUMBER: PCT/SG98/00046

FILING DATE: 19-JAM-1998

ATTORNEY/AGENT INFORMATION:

NAME: Mass, Clifford J.

REGISTRATION NUMBER: 30,086

REFERENCE/DOCKET NUMBER: U-013109-7

TELECOMMUNICATION INFORMATION:

TELEPHONE: (212) 708-1800

INFORMATION FOR SEO ID NO: 4:

SEQUENCE CHARACTERISTICS:
LENGTH: 212 amino acids
TYPE: amino acid

TYPE: amino acid

TYPE: amino acid

TYPE: amino acid

TYPE: amino acid

TYPE: amino acid

TYPE: amino acid

TYPE: amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid

TYPE: Amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 184; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 12, Application US/09812862
Patent No. US20020035081A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130 LWFHISCLTFGRETVLEYLVSFGVWIRTPTAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190 PSPRERRSOSPERRSOSRESQ 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75 EHCSPHHTALROAILCWGELMNLATWVGSNLEDP----ASRELVVSYVNVNMGLKLRQI 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73 EHCSPHHTALRQAILCWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION DATA: US/10/209,264
PILING DATE: 31-Jul-2002
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 10023
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE DESCRIPTION: SEQ ID NO: 4:
COMPUTER FARMABLE FORM:
MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Wands, Jack R.
Scaplioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSPRRRRSQSPRRRRSQSREPQ 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWDWDIDPYKEFGASAELLSFLPSDFPPSIRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
                                                                                                                                                                                   COUNTRY: USA
ZIP: 02110-2804
                                                                                                                                                                                                                                               STATE: MA
                                                                                                                                                                                                                                                                            CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85.1%; Score 977.5; DB 9 91.1%; Pred. No. 3.9e-89; tive 5; Mismatches 8
                                            Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           æ
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

۲.

```
US-09-812-862-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 12:
US-09-812-862-12
                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 5
                                                                                                                                                                                                                                                                                                                                                    Sequence 6, Application US/09812862
Patent No. US20020035081A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 180; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEX: 200154
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
             176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28 MDIDPYKEFGATVELLSFLPSDFPPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                      Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                   APPLICANT: Wands, Jack R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Clark, Paul T.
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 00
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 08/667,073
FILING DATE: «Unknown)
APPLICATION NUMBER: 08/492,489
FILING DATE: 20-JUN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNNGLKFROLLMFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOSRESOC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRPGRSPRRRTPSPRRRRSQSPRRRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSSPRRRRSGSPRRRR 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CWGELMTLATWVGVNLEDP-----ASRDLVVSYVNTNMGLKPRQLLWPHISCLTPGTETV
          CLASSIFICATION: <Unknown>
                                                                                                                                                                                          CITY: Boston
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 183 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/09/812,862
FILING DATE: 20-Mar-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81.8%;
95.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 938.5;
Pred. No. 2.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          00786/282001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .2e-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ω</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>წ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              115
```

```
GENERAL INFORMATION:

GENERAL INFORMATION:

APPLICANT: Mizzen, Lee A.

APPLICANT: Hongwei, Liu

APPLICANT: Hongwei, Liu

APPLICANT: HONGwei, Liu

APPLICANT: HONGwei, Liu

CURENT: HONGWEI HEBATITIS B VIRUS TREATMENT

FILE OF INVENTION: HEBATITIS B VIRUS TREATMENT

CURRENT APPLICATION NUMBER: US/10/068,059

CURRENT PILING DATE: 2002-06-04

PRIOR APPLICATION NUMBER: US 60/266,733

PRIOR APPLICATION NUMBER: US 60/266,733

PRIOR PILING DATE: 2001-02-05

NUMBER OF SEQ ID NOS: 12

SOFTWARE: FASTSEQ FOR WINDOWS Version 4.0

SEQ ID NO 12

LENGTH: 724
                                           Ş
         밁
                                                                                                                                                         ; FEATURE:
; OTHER INFORMATION: Fusion protein US-10-068-059-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-068-059-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-812-862-6
                                                                                   Matches
                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 12, Application UPatent No. US20020155434A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                           ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEX: 200154
INFORMATION FOR SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           176 SQSR 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208 SQSR 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116 İBYLVSFGVMİRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 175
28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 IBYLVSFGVWIRTPPAYRPPNAPILSTLPBTTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 CWGELMTLATWVGVNLEDP-----ASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRETV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28 MDIDPYKEFGATVELLSFLPSDFFPSVRDILLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
mes 179; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 00
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 08/492,489
FILING DATE: 20-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: Clark, Paul T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 397 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CWGELMTLATWVGVNILEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/10068059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 08/667,073 FILING DATE: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 617/542-8906
                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                               80.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81.3%;
97.3%;
                                                                         Score 928.5; DB 9;
Pred. No. 1.2e-83;
2; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 933.5; DB 1
Pred. No. 1.8e-84;
0; Mismatches C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      00786/282001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>ق</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                               Length 724;
                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 397;
                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ت</u>
                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                         2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1,
```

```
GENERAL INFORMATION:

APPLICANT: Mizzen, Lee A.

APPLICANT: Hongwei, Liu

APPLICANT: Siegel, Marvin

ITILE OF INVENTION: HEPATITIS B VIRUS TREATMENT

FILE REFERENCE: 12071-017002

CURRENT APPLICATION NUMBER: US/10/068,059

CURRENT FILING DATE: 2002-06-04

PRIOR APPLICATION NUMBER: US 60/266,733

PRIOR FILING DATE: 2001-02-05

NUMBER OF SEQ ID NOS: 12

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 6

LENGTH: 746

TYPE: PRT
ORGANISM: Artificial Sequence

PEATURE:

OTHER INFORMATION: Fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
US-10-068-059-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-068-059-6
                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                               US-09-916-230-4
                                                                                                                                                                                                                                                 RESULT 8
                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 6, Application US/10068059
Patent No. US20020155434A1
Sequence 4, Application US/09916230
Patent No. US20020146422A1
GENERAL INFORMATION:
APPLICANT: Bachmann, Martin F.
APPLICANT: Renner, Wolfgang A.
APPLICANT: New Wolfgang A.
APPLICANT: New Wolfgang A.
APPLICANT: New Wolfgang A.
APPLICANT: New Wolfgang A.
TITLE OF INVENTION: Compositions for Inducing Self-Specific Anti-IgE TITLE OF INVENTION: Antibodies and Uses Thereof
FILE REFERENCE: 1700.0140001
CURRENT FILING DATE: 2001-07-27
PRIOR APPLICATION NUMBER: US 60/221,841
PRIOR FILING DATE: 2000-07-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 80.9%;
Best Local Similarity 94.2%;
Matches 179; Conservative 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148
                                                                                                                                                                                                                                                                                                         196
                                                                                                                                                                                                                                                                                                                                          206
                                                                                                                                                                                                                                                                                                                                                                                                                   148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28
                                                                                                                                                                                                                                                                                                                                                                                                                                                        18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNNGLKFROLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBYLVGFGVWIRTPPAYRPPNAPILSTLPETTVVRR--RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRSQSRESQC 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRRTPSPRRRRSQSPRR 175
                                                                                                                                                                                                                                                                                                                                                                                                       IEYLVSFGYWIRTPPAYRPPNAPILSTLPETTVVRR---RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MDIDPYKEFGATVELLSPLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                       RREOSRESOC 205
                                                                                                                                                                                                                                                                                                                                          RRSOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CMGELMILATWYGNNLEDP-----ASRDLVVNYVNTNMGLKFRQLLWFHISCLIFFGREIV 135
                                                                                                                                                                                                                                                                                                                                                                                LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRTPSPRRRRSQSPRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 928.5;
Pred. No. 1.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .3e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 9; Length 746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                      195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ŋ
```

```
APPLICANT: Hongwei, Liu
APPLICANT: Siegel, Marvin
TITLE OF INVENTION: HEPATHTIS B VIRUS TREATMENT
FILE REFERENCE: 12071-017002
CURRENT APPLICATION NUMBER: US/10/068,059
CURRENT FILING DATE: 2002-06-04
PRIOR APPLICATION NUMBER: US 60/266,733
PRIOR FILING DATE: 2001-02-05
NUMBER OF SEQ ID NOS: 12
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 2
LENGTH: 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 183
; TYPE: PRT
; ORGANISM: Hepatitis B
US-09-916-230-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                밁
                                                                                                                                                                                                                                                                                              ; TYPE: PRT; ORGANISM: Hepatitis
US-10-068-059-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-068-059-2
                                                       밁
                                                                                 ð
                                                                                                                                           Ś
                                                                                                                                                                          밁
                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 35
SOFTWARE: PatentIn version
SEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/10068059
Patent No. US20020155434A1
GENERAL INFORMATION:
APPLICANT: Nizzen, Lee A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 80.7%;
Best Local Similarity 94.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 178; Conservative
                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176 SOSRGSOC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    208 SQSREPQC 215
176
                           206 RRSQSREPQC 215
                                                         116
                                                                                     148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 CWGELMTLATWVGNNLEDP-----ASRDLVVNYVNTNNGLKIRQLLWPHISCLTFGRETV
                                                                                                                                               88
                                                                                                                                                                                                         28
                                                                                                                                                                                                                                   Local Similarity
wes 178; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IBYLVGFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRTPSPRRRRSQSPRRRR 207
                                                                                                                                                                          MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ÍEYLVSFGVWÍRTÞÞÁYRÞÞNÁÞÍLSTLÞETCVVRRRGRSÞRRRTÞSÞRRRRSQSÞRRRR
                                                       LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRTPSPRRRRSQSPRR
                                                                          IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR--RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                                 CWGELMTLATWYGVNLEDPEFRGDASRDLYVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
RRSQSRESQC
                                                                                                                                                                                                                                      Conservative
185
                                                                                                                                                                                                                                                    80.4%;
                                                                                                                                                                                                                                                                                                               B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 926.5; DB 10;
Pred. No. 3.4e-84;
                                                                                                                                                                                                                                   Score 922.5; DB 9;
Pred. No. 8.6e-84;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>ن</u>
                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                         7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                           Gaps
                                                                                                                        115
                                                               175
                                                                                                                                                                                 60
                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۳
                                                                                                                                                                                                                                           N
```

```
GENERAL INFORMATION:

APPLICANT: Bachmann, Martin F.

APPLICANT: Bachmann, Martin F.

APPLICANT: Renner, Wolfgang A.

ITITLE OF INVENTION: Compositions for Inducing Self-Specific Anti-IgE

TITLE OF INVENTION: Antibodies and Uses Thereof

FILE REFERENCE: 1700.0140001

CURRENT APPLICATION NUMBER: US/09/916,230

CURRENT FILING DATE: 2001-07-27

PRIOR APPLICATION NUMBER: US 60/221,841

PRIOR FILING DATE: 2000-07-28

NUMBER OF SEQ ID NOS: 35

SOFTWARE: Patentin version 3.0

SEQ ID NO 5

SEQ ID NO 5

SEQ ID NO 5

COGANISM: Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-812-862-8
Sequence 8, Application US/09812862
Patent No. US20020035081A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-916-230-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-916-230-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 80.4%;
Best Local Similarity 93.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 5, Application US/09916230 Patent No. US20020146422A1
COUNTRY: USA
ZIP: 02110-2804
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRIT APPLICATION NUMBER: US/09/812,862
PILING DATE: 20-Mar-2001
CLASSIFICATION : cunknown>
PRIOR APPLICATION NUMBER: 08/667,073
PFLING DATE: -UNKNOWN>
APPLICATION NUMBER: 08/667,073
FILING DATE: -UNKNOWN>
APPLICATION NUMBER: 08/667,073
PILING DATE: -UNKNOWN>
APPLICATION NUMBER: 08/492,489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               176 RRSOSRESOC 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         206 RRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               116 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRRTPSPRRRRSQSPRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Wands, Jack R.
Scaglioni, Pier Paolo
Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR---RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CWGELMTLATWVGNNLEDP----ASRDLVVNYVNTNMGLKIRQLLWFHISCLTFGRETV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                          CITY: Boston
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Fish & Richardson P.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                     225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ν
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 922.5; DB 1
Pred. No. 8.6e-84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
```

```
RESULT 12
US-09-812-862-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-812-862-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 4, Application US/09812862
Patent No. US20020035081A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 176; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEX: 200154
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          176 SST 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           116 İEYLVSFGVWİRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           208 SQS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                          ZIP: 02110-2804

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/667,073
APPLICATION NUMBER: 08/492,489
APPLICATION NUMBER: 08/492,489
FILING DATE: 20-JUN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scaglioni, Pier Paolo
Melegari, Margherita
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Wands, Jack R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Clark, Paul T.
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 007
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Clark, Paul T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CWGBLMTLATWVGVNLEDP-----ASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRBTV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                     APPLICATION NUMBER: US/09/812,862
FILING DATE: 20-Mar-2001
CLASSIFICATION: <Unknown>
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 00786/282001
                                    NAME: Clark, Paul T
                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                       STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                         CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80.2%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 920.5; DB 1
Pred. No. 2.4e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            00786/282001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲
```

```
LENGTH: 351 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO:
US-09-812-862-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
US-10-068-059-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
     밁
                                á
                                                                      맑
                                                                                                     S
                                                                                                                                           헍
                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                    US-10-068-059-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 10, Application US/10068059
Patent No. US20020155434A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 75.2%;
Best Local Similarity 87.5%;
                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 12
SOFTWARE: PastSEQ for Windows Version 4.0
SEQ ID NO 10
LENGTH: 690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 168;
                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                  Matches 148;
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Hongwei, Liu
APPLICANT: Siegel, Marvin
TITLE OF INVENTION: HEPATITIS B VIRUS TREATMENT
FILE REFERENCE: 12071-017002
CURRENT APPLICATION NUMBER: US/10/068,059
CURRENT FILING DATE: 2002-06-04
PRIOR APPLICATION NUMBER: US 60/266,733
PRIOR FILING DATE: 2001-02-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Mizzen, Lee A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: Fusion protein
                                                                                                                                                                                                                                                                                                                      FEATURE:
                         4 148 IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         179 QSPTŚNHSPTSC 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        204 RRRRSQSREPQC 215
116 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                              28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                        13
                                                                                                           88
                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: 617/542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRG----RSPRRRTPSPRRRRSOSP 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBYLVSFGVWIRTPPAYRPPNAPILSTLPEHTVIRRGGARASRSPRRRTPSPRRRRSQNS 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV
                                                                        CWGELMTLATWVGNNLEDP----ASRDLVVNYVNTNMGLKFRQLLWFHISCLTFGRETV 115
                                                                                       CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNINMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                             MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 617/542-8906
TELEX: 200154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                               67.8%;
ilarity 94.9%;
Conservative

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 863.5; DB 1
Pred. No. 1.3e-77;
                                                                                                                                                                                                                  <u>د</u>
                                                                                                                                                                                                               Score 778.5; DB 9
Pred, No. 6.9e-69;
2; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10; Length 351;
                                                                                                                                                                                                                                                 DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                   Length 690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                  <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ب</u>
                                                                                                                                                                                                                  ۲
```

```
Sequence 4, Application US/10068059

Patent No. US20020155434A1

; GENERAL INFORMATION:

APPLICANT: Mizzen, Lee A.

APPLICANT: Hongwei, Liu

APPLICANT: Hegel, Marvin

TITLE OF INVENTION: HEPATITIS B VIRUS TREATMENT

TITLE OF INVENTION UNMBER: US/10/068,059

; CURRENT APPLICATION NUMBER: US 60/266,733

; PRIOR APPLICATION NUMBER: US 60/266,733

; PRIOR APPLICATION STATE OF STATE OF SEQ ID NOS: 12

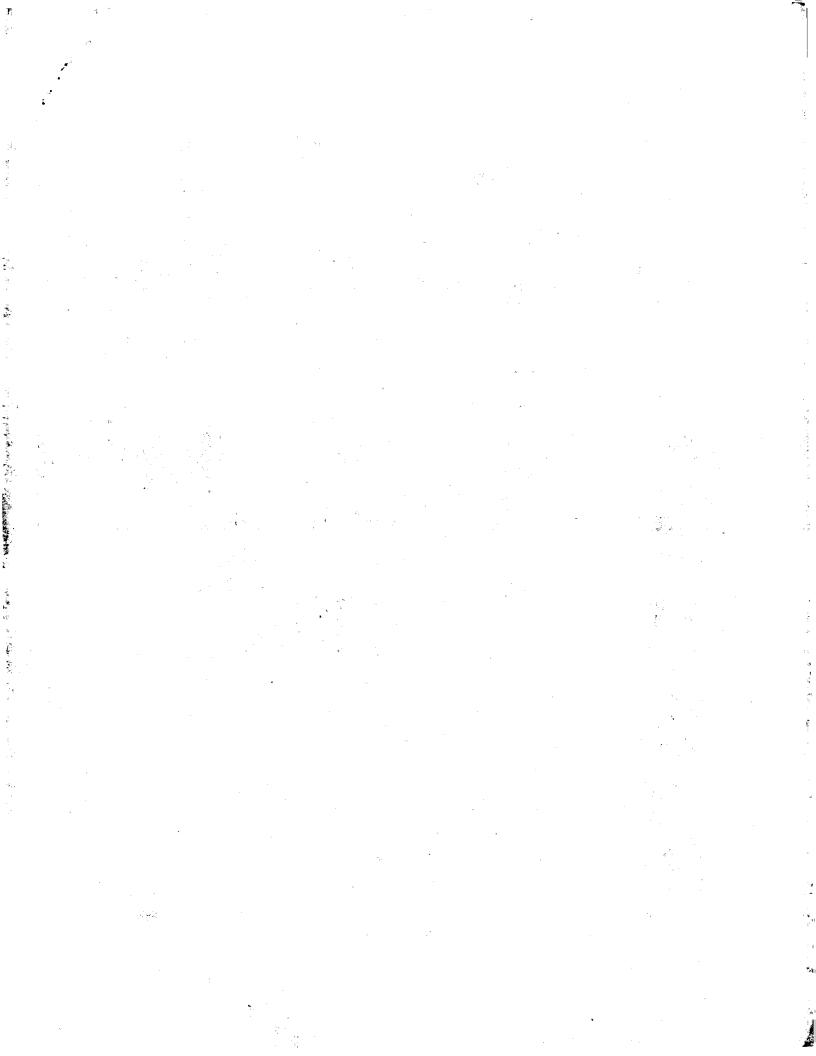
; SOFTWARE: FastSEQ for Windows Version 4.0

; SEQ ID NO 4

; FASTSEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Mizzen, Lee A.
APPLICANT: Mizzen, Liu
APPLICANT: Hongwei, Liu
APPLICANT: Siegel, Marvin
TITLE OF INVENTION: HEPATITIS B VIRUS TREATMENT
FILE REPERENCE: 12071-017002
CURRENT APPLICATION NUMBER: US/10/068,059
CURRENT FILING DATE: 2002-06-04
PRIOR APPLICATION NUMBER: US 60/266,733
PRIOR APPLICATION NUMBER: US 60/266,733
PRIOR FILING DATE: 2001-02-05
NUMBER OF SEO ID NOS: 12
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 8, Application US/10068059
Patent No. US20020155434A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-068-059-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: Fusion protein US-10-068-059-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                      ş
                                                                                                                                             ; OTHER INFORMATION: Fusion protein US-10-068-059-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-068-059-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                            Query Match 67.2%;
Best Local Similarity 95.5%;
Matches 147; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                               LENGTH: 170
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVNAK 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81 CWGELMTLATWVGNNLEDP-----ASRDLVVSYVNTNMGLKFROLLWFHISCLTFGRETV 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESPEHCSPHHTALRQAIL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28 MDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
mes 147; Conserv
28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALLYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CWGELMTLATWYGYNLEDPEFRGDASRDLYVSYYNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67.3%;
93.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 772.5; DB 5
Pred. No. 2.8e-68;
                                                              Score 771.5; DB 9
Pred. No. 5.9e-69;
1; Mismatches 1
                                                                                                        DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 9;
                                                                  1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                        Length
                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
```

۲.

Sear Job 1	망	Ś	망	S	탕
Search completed: Pebruary 3, 2003, 09:35:29 Job time : 9.86585 secs	Db 136 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVV 169	•	Db 81 CWGELMTLATWVGNNLEDPASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRETV 135	•	Db 21 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 80
5:29	TVV 169	TVV 181 .	SYVNTNMGLKFRQLLWFHISCLTFGRETV 135	CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKERQLLWEHISCLTEGRETV 147	DTASALYREALESPEHCSPHHTALRQAIL 80



```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
               1000
907.5
954.5
954.5
954.5
972
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
933.5
                                                                                                                                                                                                                                                                                                                                                                                                             1040.5
1015.5
1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length
                 90.6
88.5
88.3
87.2
84.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MPLSSIFSRIGDPTVQASKL.....RRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-890-752A-2
1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      February 3, 2003, 09;22:17; Search time 13.1098 Seconds (without alignments)
482.536 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Issued_Patents_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn2_6/ptodata/1/laa/5A_COMB.pep:*
/cgn2_6/ptodata/1/laa/5B_COMB.pep:*
/cgn2_6/ptodata/1/laa/6A_COMB.pep:*
/cgn2_6/ptodata/1/laa/6B_COMB.pep:*
/cgn2_6/ptodata/1/laa/BCTUS_COMB.pep:*
/cgn2_6/ptodata/1/laa/backfiles1.pep:*
             183
397
185
185
185
185
185
185
185
185
185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.3
(c) 1993 - 2003 Compugen Ltd
      PCT-US96-10602-6
US-07-739-642-2
US-07-739-643-2
US-07-739-142-2
PCT-US96-10602-8
US-09-248-588-6
US-09-248-588-6
US-09-248-588-4
US-07-739-642-4
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
US-07-739-643-10
                                                                                                                                                                                                                                                                     US-08-968-747-18
US-08-968-747-18
US-08-968-747-2
US-08-968-747-2
US-08-968-747-2
US-08-968-747-2
US-08-709-209-217
US-08-709-209-217
US-08-458-101-217
US-08-458-101-217
US-08-458-2
PCT-US96-10602-12
US-08-968-747-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
Sequence 3, Appli
Sequence 18, Appl
Sequence 21, Appl
Sequence 217, Appli
Sequence 217, Appli
Sequence 217, Appli
Sequence 217, Appli
Sequence 2, Appli
Sequence 12, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 10, Appli
Sequence 10, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Description
                 S
                                                  밁
                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
US-08-968-747-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3, Application US/08968747
Patent No. 6060595
GENERAL INFORMATION:
                 73
                                                  15
                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
```

Result

ð

Database :

. <u>4.</u> U	44	.A.	4.2	41	40	39	38	37	3.6	i iii	(L)	(J.	3 2	3.1	30	29	28
157	166	175	194	607.5	671	757.5	767.5	767.5	767.5	772.5	772.5	772.5	821.5	821.5	821.5	844.5	863.5
13.7	14.5	15.2	16.9	52.9	58.4	66.0	66.9	66.9	66.9	67.3	67.3	67.3	71.6	71.6	71.6	73.6	75.2
420	305	305	39	346	188	217	214	214	214	214	214	214	161	155	154	159	351
ហ	4	4	w	ហ	4	4	_	μ	μ	μ	ш	_	ω	ω	w	4	ហ
PCT-US96-10602-10	US-09-248-588-13	US-09-248-588-11	US-08-968-747-5	PCT-US96-10602-2	US-09-248-588-7	US-09-248-588-9	US-07-739-142-6	US-07-739-643-6	US-07-739-642-6	US-07-739-142-12	US-07-739-643-12	US-07-739-642-12	US-08-968-747-19	US-08-968-747-17	US-08-968-747-1	US-08-445-585-3	PCT-US96-10602-4
10,	Sequence 13 Appl	_ ;	л (Sequence 2 Appli	1	tidde o somethous	n (n (ָ יַ	12		13	<u>.</u>	17	Seguence 1. Appli	. د	Segmence 4 Appli

ALIGNMENTS

```
; TELEX: 200154
; INFORMATION FOR SEQ ID NO: 3
; SEQUENCE CHARACTERISTICS:
; LENGTH: 212 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-968-747-3
                                                                                                                  Query Match
Best Local Similarity 97.0
Matches 197; Conservative
                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5070
TELEPAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: PRESET, Janis K.
REGISTRATION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC Compatible
OPERATING SYSTEM: Windows
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Scaglioni et al
TITLE OF INVENTION: INHIBI'
NUMBER OF SEQUENCES: 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 225 F
CITY: Boston
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE: 03-SEI CLASSIFICATION: 43
EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVTNMGLKFRQL
                                                                        PTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                    PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                 212 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-SEP-1997
                                                                                                                                             90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INHIBITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/968,747
                                                                                                                                                                                                                                                                                                     ω
..
                                                                                                                         Score 1040.5; DB 3;
Pred. No. 2.2e-106;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                      08472/705001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF VIRAL REPLICATION
                                                                                                                                                             DB 3;
                                                                                                                           Indels
                                                                                                                                                         Length
                                                                                                                         ٠.
دن
                                                                                                                       Gaps
                                                                                        72
                                                                                                                       1;
```

```
RESULT 2
US-08-968-747-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein US-08-968-747-18
                                                                                            ঠ
                                                                                                                               밁
                                                                                                                                                             र्
                                                                                                                                                                                                                              ş
밁
                           Ś
                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 18, Appr
Sequence 18, Appr
--- No. 6060595
                                                                                                                                                                                                                                                                                                                                                                                                                                              GOPTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/968,747
FILING DATE: 03-85P-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Fraser, Janis K.
REGISTRATION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 08472/705001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5070
TELEPAX: 617/542-8906
TELEPAX: 200154
                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 192; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 02110-2804

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows
SOCHWARE: Patentin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Scagli
                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS.
LENGTH: 194 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Scaglioni et al. TITLE OF INVENTION: INHIBIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75
 177
                                                                                                 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                   62
                                                                                                                                                                  78
                                                                                                                                                                                                                   18 SKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSP 77
                                                                                                                                                                                                2 SKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSP 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LWFHISCLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSPRRRRSQSPRRRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP-----ASRDLVVSYVNTNMGLKFRQL
                                                                                     SCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTFSPRR 197
                                                                                                                                                  HHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHI 137
                                                                                                                                 HHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFROLLWFHI 116
                               RRSQSPRRRRSQSREPQC 215
                                                                SCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRR 176
 RRSQSPRRRRSQSRESQC 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/08968747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                    194 amino acids
                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                    97.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INHIBITION OF VIRAL REPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                       18:
                                                                                                                                                                                                                                                                  Score 1015.5; DB 3; 
Pred. No. 1.1e-103; 
0; Mismatches 1;
                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                     Length 194;
                                                                                                                                                                                                                                                                         ű
                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129
                                                                                                                                                                                                                                                                         1;
```

```
US-08-968-747-21
                                                                                                                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-968-747-21
                                                                                                                                                                           US-08-968-747-2
                                                                                                                                                                                             RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 21, Applicat Patent No. 6060595
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88.3%;
Best Local Similarity 96.5%;
Matches 191; Conservarium
                                                                                                                             Sequence 2, Application US/08968747
Patent No. 6060595
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Fraser, Janis K.
REGISTRATION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 0847
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-5076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Scaglioni et al.
APPLICANT: Scaglioni et al.
TITLE OF INVENTION: INHIBITION OF VIRAL REPLICATION
NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
ADDATES STREET: 2- BOSTON MA
                                                                         NUMBER OF SEQUENCES: 21
                                                                                                 APPLICANT: Scaglioni et al. TITLE OF INVENTION: INHIBIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELLETAX: 61.,
TELEFAX: 200154
                                                                   CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                          182
                                                                                                                                                                                                                                                                       198
                                                                                                                                                                                                                                                                                                       122
                                                                                                                                                                                                                                                                                                                                  138
                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/0 FILING DATE: 03-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: lin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                             62 HHTALRQAILCWGELMTLATWVGVNLEDYKDDDDKSRDLVVSYVNTNMGLKFRQLLWFHI
                                                                                                                                                                                                                                                                                                                                                                                            78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENGTH:
                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                 HHTALRQAILCWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHI 137
                                                                                                                                                                                                                                                                                                  SCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVKRRGRSPRRRTPSPRR
                                                                                                                                                                                                                                                                                                                    SCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRR 197
                                                                                                                                                                                                                                          RRSOSPRERRESOSRESOC
                                                                                                                                                                                                                                                                    RRSOSPRRRRSOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/08968747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Fish & Richardson P.C.
225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             199 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          617/542-8906
                                        225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                         Figh & Richardson P.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/968,747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1014; DB 3;
Pred. No. 1.6e-103;
1; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08472/705001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 199;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77
```

```
RESULT 5
US-08-105-483-217
; Sequence 217, Application US/08105483
Perent No. 5494807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE:
US-08-968-747-2
                                                                                                                                                                                                                                                                     Patent No. 5494807
Patent No. 5494807
PATENT INFORMATION:
GENERAL INFORMATION:
APPLICANT: Paoletti, Enzo
TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
TITLE OF INVENTION: 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: 617/542-5070
TELEPAX: 617/542-8906
TELEX: 200154
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 193 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 87.2%;
Best Local Similarity 96.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
SOPTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/105,483
                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                    STREET: 550
STREET: 550
CITY: New York
TMATE: NY
                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 462
CORRESPONDENCE ADDRESS:
ADDRESSEE: Curtis, Morris & Safford ADDRESSEE: C/o William S. Frommer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Fraser, Janis K.
REGISTION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 084
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617,542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/968,747 FILING DATE: 03-SEP-1997 CLASSIFICATION: 435 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             176 RRSQSPRRRRSQSRESQC 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198 RRSQSPRRRRSQSREPQC 215
                                                                                                                                  COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18 SKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSP 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
STRANDEDNESS: not
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŚCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRR 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HHTALKQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVDTNMGLKFRQLLWFMI 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHI 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02110-2804
                                                                                                                                                                                                        530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1000.5; DB 3
Pred. No. 4.7e-102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08472/705001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 3; Length 193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲.
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-709-209-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               먉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/709,209
FILING DATE: 21-AUG-1996
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/105,483
FILING DATE: 12-AUG-1993
FILING DATE: 12-AUG-1993
FILING DATE: 12-AUG-1993
FILING DATE: 12-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-105-483-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 217, Application US/08709209 Patent No. 5762938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 84.7%;
Best Local Similarity 88.7%;
Matches 189; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Paolet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: :
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: GETITLE OF INVENTION: ST.
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 346 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/847,951
FILING DATE: 06-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Prommer, William S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2400
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               314 RRGRSPRRRTPSPRRRRSQSPRRRRSQSRESQC 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183 RRGRSPRRRTPSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  123 TNMGLKERQLLWEHISCLTFGRETVIEYLVSFGVWIRTEPAYRPENAPILSTLPETTVVR 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199 ALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDP-----ASRDLVVSYVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         254 TNMGLKFRQLLWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150 IŚŚISARTGDPVT------NMDIDPYKEFGATVBLLSFLPSDFFPSVRDLLDTAS
APPLICATION NUMBER: US 07/847,951
FILING DATE: 06-MAR-1992
                                                                                                                                                                                                                                                                                                                             STREET: 530 Fit
CITY: New York
                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Curtis, Morris & Safford ADDRESSEE: c/o William S. Frommer STREET: 530 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (212)
                                                                                                                                                                                                                                                                         ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63 ALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVN 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ę
                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                     Paoletti, Enzo
VENTION: GENETICALLY ENGINEERED VACCINE
VENTION: STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                   462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 972; DB 1;
Pred. No. 1.5e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels 16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
```

Ŋ

```
RESULT 7
US-08-458-101-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-709-209-217
                                                                                                                                                                                               APPLICANT: Cox, William I.

APPLICANT: Audonnet, Jean-Christophe Francis
APPLICANT: Gettig, Russell Robert

TITLE OF INVENTION: GENETICALLY ENGINEERED VACCINE
TITLE OF INVENTION: STRAIN
NUMBER OF SEQUENCES: 467
CORRESPONDENCE ADDRESS:
ADDRESSEE: Curtis, Morris & Safford
ADDRESSEE: c/o William S. Frommer
STREET: 530 Fifth Avenue
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 189; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 217, Application US/08458101 Patent No. 5766599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No. 5766599
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 217:
SEQUENCE CHARACTERISTICS:
LENGTH: 346 amino acide
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454310-2400
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
             ZIP: 10036

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/458,101
FILING DATE: 01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 LSSIFSRIGDPTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match 84.7%;
Local Similarity 88.7%;
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVN 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RRGRSPRRRTPSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           THMGLKFRQLLWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVR 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TNMGLKERQLLWFHISCLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLFETTVVR 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RRGRSPRRRTPSPRRRRSQSPRRRRSQSRESQC 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALYREALESPENCSPHITALROALLCWGELMTLATWVGVNLEDP----ASRDLVVSYVN
                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tartaglia, James
No. 5766599ton, Elizabeth
Riviere, Michel
                                                                                                                                                                                                                                                                                                                                                                                           Pincus, Steven E. Cox, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Paoletti,
                                                                                                                                                                                                                                                                                                                                                                                                                             Limbach, Keith J.
Johnson, Gerard P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  de Taisne, Charles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Taylor, Jill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Enzo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 972; DB 1;
Pred. No. 1.5e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
```

```
RESULT 8
5196194-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-458-101-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                 S
                                                                                                     밁
                                                                                                                                   Ş
                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                5196194-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Patent No. 5196194
; Patent No. 5196194
; APPLICANT: RUTTER, WILLIAM J.; GOODMAN, HOWARD M.
                                                                                                                                                                                                                                                                                                                            SEQ ID NO:13:
LENGTH: 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 189; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                            Matches 187;
                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 346 amino acids
                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/07/679,621
PILING DATE: 7-DEC-1984
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 513,055
FILING DATE: 12-JUL-1983
APPLICATION NUMBER: 107,267
FILING DATE: 21-DEC-1979
APPLICATION NUMBER: 41,909
FILING DATE: 24-MAY-1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454
TELECOMMUNICATION INFORMATION:
TELECHONE: (212) 840-3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: VACCINES NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         314 RRGRSPRRRTPSPRRRRSQSPRRRRSQSRESQC 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183 RRGRSPRRRTPSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254 TWMGLKFRQLLWFHISCLIFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123 TNMGLKFRQLLWFHISCLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVR 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               150 ISSISARTGDPVT------NWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
STRANDEDNESS: sir
TOPOLOGY: linear
                                   127
                                                            133 LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR--RGRSPRR 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63 ALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVN 122
191 RTPSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                     3 LSSIFSRIGDPTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLFSDFFFSVRDLLDTAS
                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALYREALESPENCSPHHTALRQAILCWCELMTLATWVGVNLEDP-----ASRDLVVSYVN
                                   LWFHISCLTFGRETVLEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRR
                                                                                                   EHCSPHHTALROAILCWGEL-TLATWVGNNLEDP----ASRDLVVNVVNTNVGLKIRQL 126
                                                                                                                         EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Frommer, William
                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84.7%;
                                                                                                                                                                                                                                                            83.1%; Score 954.5; DB 6;
91.2%; Pred. No. 6e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 972; DB 1;
Pred. No. 1.5e-98;
2; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              454310-2740

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONTAINING HEPATITIS B S-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6; Indels
                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 346;
                                                                                                                                                                                                                                                                              Length 211;
                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16;
                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>ب</u>
                                                                                                                                                                                                                                                  4
```

```
RESULT 10
PCT-US96-10602-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT
; ORGANISM: Hepatitis B virus
US-09-248-588-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-248-588-2
                                                                                                                                                                                                                                                                                                                                                                                          Sequence 12, Application PC/TUS9610602 GENERAL INFORMATION:
                                                                                                          COUNTRY: USA
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 82.9
Best Local Similarity 96.8
Matches 182; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Birkett, Ashley J.

APPLICANT: Birkett, Ashley J.

TITLE OF INVENTION: Strategically Modified Hepatitis B Core Proteins and TITLE OF INVENTION: their Derivatives

FILE REFERENCE: SYM-101 4564/65959

CURRENT APPLICATION NUMBER: US/09/248,588

CURRENT FILING DATE: 1999-02-11

EARLIER APPLICATION NUMBER: 60/074537

EARLIER FILING DATE: 1998-02-12

RUMBER: OF SEQ ID NOS: 113

SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence 2, Application US/09248588 Patent No. 6231864
              FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 6:
FILING DATE: 20-JUN-1:
                                                                                                                                                                                                                                          STREET: 21.
STREET: 21.
CITY: Boston
""ATE: MA
""SA
                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Pish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                    APPLICANT: The General Hospital Corporation
TITLE OF INVENTION: INHIBITION OF HEPATITIS B REPLICATION
                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENGTH: 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     176
                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187 RTPSPRRRRSPSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                     ADDRESSEB: Fish & ALUME
STREET: 225 Franklin Street
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IBYLVSFGVWIRTFPAYRPPNAPILSTLPETTVVRRGRSPRRTFSDRRRRSOSPRRRR 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFROLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SQSRESQC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFROLLWFHISCLTFGRETV 115
                20-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82.9%;
96.8%;
                                                                                             PCT/US96/10602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 951.5; DB 4
Pred. No. 1.1e-96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             211
                                                                                                                              Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
```

```
COUNTRY: USA
ZIP: 02110-2804
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: Windows
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/968,747
FILING DATS: 03-SEP-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 08472/705001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-8906
TELEPAX: 617/542-8906
TELEPAX: 617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-968-747-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      딿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
        TELEFAX: 617/542-8906
TELEX: 200154
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 183 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCT-US96-10602-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEX: 20015*
INFORMATION FOR SEQ ID NO: 12
SEQUENCE CHARACTERISTICS:
LENGTH: 183 amino acids
TYPE: amino acid
TYPE: TYPE: Tinear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 20, Application US/08968747 Patent No. 6060595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 180; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Scaglioni et al.
TITLE OF INVENTION: INHIBITION OF VIRAL REPLICATION
NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                           STREET: ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Clark, Paul T.
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: 617/542-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176 SQSRESQC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRSPRRRTPSPRRRRSQSPRRRR 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208 SOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Fish & ALLERSTEEL: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 CWGELMTLATWVGVNLEDP-----ASRDLVVSYVNTNNGLKFRQLLWFHISCLTFGTETV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALROAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IEYLVSPGVWIRTPPAYRPPNAPILSTLPETTVVRRPGRSPRRRTPSPRRRRSOSPRRRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        617/542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81.8%;
95.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        00786/282001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 938.5; DB 5
Pred. No. 2.8e-95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             87
```

```
; STRANDEDNESS: not relevant
TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-968-747-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      १
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
PCT-US96-10602-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 95.,
180; Conservative
                                                                   MOLECULE TYPE: protein PCT-US96-10602-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 6, Application PC/TUS9610602
GENERAL INFORMATION:
Owery Match
Best Local Similarity
Matches 179; Conserv
                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Clark, Paul T.
30,162
REGISTRATION UNMER: 30,162
REFERENCE/DOCKET NUMBER: 0078
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/542-8906
                                                                                                                                                                      TELEX: 200154
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: The General Hospital Corporation TITLE OF INVENTION: INHIBITION OF HEPATITIS NUMBER OF SEQUENCES: 14
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 02110-2804
COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PATENT PC COMPATION DOS SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/017,814
PILING DATE: 20-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148
                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 397 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MDIDPYKEPGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE: MA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: 225
CITY: Boston
                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: PCT/US96/10602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CWGELMTLATWVGVNLEDP----ASRDLVVSYVDTNMGLKFRQLLWFMISCLTFGRETV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOSREPOC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRTPSPRRRRSQSPRRRR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQSRESQC 183
                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                225 Franklin Street
          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fish & Richardson P.C.
                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81.6%;
95.7%;
        81.3%; Score 933.5; DB 5; 97.3%; Pred. No. 3e-94; tive 0; Mismatches 0;
                                                                                                                                                                         6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 936.5; DB 3
Pred. No. 4.7e-95;
                                                                                                                                                                                                                                                         00786/282001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B REPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                          Length 397;
               Indels
               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                1;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
US-07-739-642-2
                                                                                                                                                           á
                                                                                                                                                                                                                                                            US-07-739-642-2
                         á
                                                              밁
                                                                                           ş
                                                                                                                              문
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2, Application US/07739642
Patent No. 5173427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: Mallonee, Richard L.
APPLICANT: Mallonee, Richard L.
TITLE OF INVENTION: Vectors And Hosts With Increased
TITLE OF INVENTION: Expression Of HBcAg
NUMBER OF SEQUENCES: 24
                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                             Matches 178;
                                                                                                                                                                                                                                                                                        TELEFAX: 201-848-9228
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 185 amino acids
TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 07417-1880

ZIP: 07417-1880

COMPUTER READABLE FORM:

MEDIUM TYPE: #10ppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/739,642

FILING DATE: 1991801
                                                                                                                                                                                                                                                                                                                                                     NAME: Stierwalt, Brian K.
REGISTRATION NUMBER: 33,213
REFERENCE/DOCKET NUMBER: P-2272
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-848-5317
TELEFAX: 201-848-9228
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176 SQSR 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 CWGELMTLATWVGVNLEDP----AGRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: 1 Becton uri
                                148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Richard R. 1
STREET: 1 Becton Drive
                                                                                                                                              28 MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                61
                                                                                              88
                                                                                                                              μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRBTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MDÍDÞÝKERGATVELLSFLÞSDFFÞSVRDLLDTASALÝREALESÞEHCSÞHHTALRQAÍL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SQSR 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRRTPSPRRRRSQSPRR
                                                                               CWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLMFHISCLTFGRETV 147
                                                              CWGELMTLATWVGNNLEDP-----ASRDLVVNYVNTNWGLKIRQLLWFHISCLTFGRETV 115
                                                                                                                             MDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 60
                IEYLVSFGVWIRTPDAYRPPNAPILSTLPETTVVRR--RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                              80.4%;
93.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rodrick
                                                                                                                                                                                                                                                                                                                                               <u>ب</u>
                                                                                                                                                                                                2
                                                                                                                                                                                                                 Score 922.5; DB 1
Pred. No. 1.6e-93;
                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                 Length 185;
                                                                                                                                                                                                      7;
                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
           175
```

δ

206 RRSQSREPQC

215

문

176 RRSQSRESQC 185

```
TELEFAX: 201-848-9228
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 185 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear
US-07-739-643-2
; Sequence 2, Application US/07739142
; Patent No. 5175272
; GENERAL INFORMATION:
APPLICANT: Mallonee, Richard L.
TITLE OF INVENTION: DNA Sequences
TITLE OF INVENTION: of HBCAG
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
                                                                                                                                                            RESULT 15
US-07-739-142-2
                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-07-739-643-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 80.4%; Score 922.5; DB 1; Best Local Similarity 93.7%; Pred. No. 1.6e-93; Matches 178; Conservative 2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/739,643
FILING DATE: 19910801
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Stierwalt, Brian K.
REGISTRATION NUMBER: 33,213
REFERENCE/DOCKET NUMBER: P-2090
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-848-5317
TELEPAX: 201-848-9228
TNOORMATION FOR EACH TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2, Application US/07739643
Patent No. 5175094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                               176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Mallonee,, Richard L.
TITLE OF INVENTION: Increased Expression of HBcAg
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                          206 RRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                     148 IBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR--RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: New Jersey COUNTRY: U.S.A. ZIP: 07417-1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Richard R. Rodrick
STREET: 1 Becton Drive
CITY: Franklin Lakes
                                                                                                                                                                                                                                                                                                              LEYLVSFGVW1RTPPAYRPPNAP1LSTLPETTVVRRRDRGRSPRRRTPSPRRRRSQSPRR
                                                                                                                                                                                                                                                                                                                                                                                         CWGELMTLATWVGNNLEDP----ASRDLVVNYVNTNMGLKIRQLLWFHISCLTFGRETV 115
                                                                                                                                                                                                                                                                                                                                                                                                                    CWGELMTLATWVGVNLEDDEFRGDASRDLVVSYVNTNWGLKFRQLLWFHISCLTFGRBTV 147
                                                                                                                                                                                                                                         RRSQSRESQC 185
                                                    DNA Sequences With Increased Expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
```

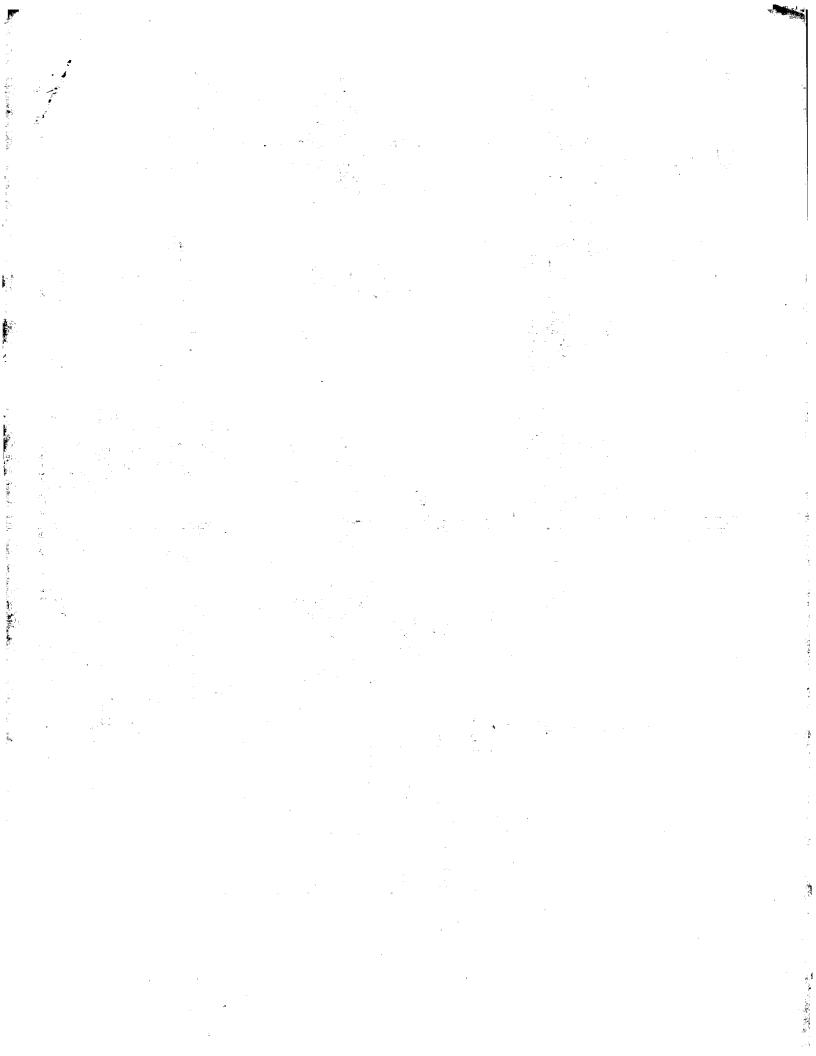
Search completed: February Job time : 14.1098 secs

3, 2003, 09:27:10

```
Ş
                                                                  밁
                                                                                                8
                                                                                                                                밁
   밁
                                                                                                                                                               á
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                             US-07-739-142-2
                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 178; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: U.S.A.

ZIP: 07417-1880
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/739,142
FILING DATE: 1991001
                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 201-848-9228
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Stierwalt, Brian K.
REGISTRATION NUMBER: 33,213
REFERENCE/DOCKET NUMBER: p-:
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: 201-848-5317
176 RRSQSRESQC 185
                                                        116 LEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRDRGRSPRRRTPSPRRRRSOSPRR 175
                              206 RRSQSREPQC 215
                                                                           148 IEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRR--RGRSPRRRTPSPRRRRSQSPRR 205
                                                                                                                         61 CWGELMTHATWYGNNLEDP-----ASRDLVVNYVNTNMGLKIRQLLWFHISCLTFGRETV 115
                                                                                                                                                                 88
                                                                                                                                                                                                             20 MDIDPYKEFGATVELLSFLPSDFFFSVRDLLDTASALYREALESPEHCSPHHTALRQAIL 87
                                                                                                                                                                                                                                                                                                                                                            LENGTH: 185 amino acids
TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Richard R. F
STREET: 1 Becton Drive
CITY: Franklin Lakes
                                                                                                                                                                                       CWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQLLWFHISCLTFGRETV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New Jersey
                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Richard R. Rodrick
                                                                                                                                                                                                                                                                        80.4%;
93.7%;
                                                                                                                                                                                                                                                                                                                                                                                                            2:
                                                                                                                                                                                                                                                          Score 922.5; DB 1;
Pred. No. 1.6e-93;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P-2271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #1.25
                                                                                                                                                                                                                                                          3; Indels
                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                       185;
                                                                                                                                                                                                                                                        7;
                                                                                                                                                                                                                                                      Gaps
```

Ŋ



```
Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92:
Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                            A Geneseq 101002:*

1: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1992.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      February 3, 2003, 09:15:41; Search time 34.4599 Seconds (without alignments) 831.368 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MPLSSIFSRIGDPTVQASKL......RRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-890-752A-2
1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                908470
```

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Result
1148 1048.5 1040.5 1040.5 1040.5 1040.5 1040.5 1037.5 1037.5 1037.5	Score
100.0 91.3 90.6 90.6 90.6 90.6 90.4	t Query Match Length DB
215 212 212 212 212 212 212 212 212 212	Length
23 23 23 23 23 23 23 23 23	DB.
AAB10597 AAW80921 AAW50250 AAE19793 AAE197918 AAE17018 AAG66924 AAW80914 AAW80915 AAW80915	ID
HBV fusion protein Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus Hepatitis B virus	Description

996.5	996.5	397.5 H6.	999.5	1000.5 87.	1002.5 87.	1007.5 87.	1007.5 87.	1007.5 87.	1008.5	5	1011.5	1014.5 88.	1015.5	1015.5 88.	1019.5 88.	1019.5 88.	1020.5 88.	.5 89.	1023.5 89.	1028.5 89.	1028.5 89.	1028.5 89.	٠	1029.5 89.	1030.5 89.	1030.5	1030.5 89.	1031.5 89.	1031.5 89.	1034.5 90.	1034.5 90.	1034.5 90.	1035.5 90.	1035.5 90.
			198 19																				212 23										212 23	
AAP80961	AAU80918	AAY44350	AAW50252	AAW50241	AAG66921	AAU80931	AAG66923	692	AAU80908	AAP90702	AAU80917	AAU80907	AAU80902	024	AAU80936	AAG66925	AAU80903	AAU80901	AAU80899	AAU80925	AAU80910	AAU80898	AAU80937	AAU80935	AAU80934	AAU80933	AAU80904	AAU80929	AAU80928	AAU80924	AAU80923	AAU80922	092	AAU80919
7	tis B viru	hepati	itie B	atitis B vi	HBV genotype A pre	ξ,	genotype C	ğ	μ.		,	3 (3 (1 3 (1	atitis P	S .	w (1		19 B	10 0	it is	itia B	, c	++in B	1				מים מיד	1110 0 11	200	itis P vi	Hepatitis B virus

ALIGNMENTS

AAB10597;

AAB10597 standard; Protein; 215

A

```
RESULT 1
AAB10597
ID AAB1
XX AAB1
AC AAB1
XX AB10
DT 08-J
XX HBV
XX Pusi
KW Viru
KW larg
XX Synt
XX Hepa
OS Hepa
OS Synt
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10-A
XX 10
Particle for cell-specific gene delivery, useful in gene therapy,
                                                                                                                          WPI; 2000-514959/46.
N-PSDB; AAA71735.
                                                                                                                                                                                                                                                                    Hildt E, Hofschneider
                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fusion protein; protein coat; virus-specific packaging signal; psi; virus protein; cell permeability; cell-specific binding site; LHB; large surface protein; core antigen; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HBV fusion protein comprising HBcAg and RGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-JAN-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                             (HILD/) HILDT E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-FEB-2000; 2000WO-DE00363.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200046376-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis b virus. Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          99DE-1004800
                                                                                                                                                                                                                                                               P
```

```
RESULT 2
AAU899
XX AAU89
XX AAU89
XX AAU89
XX AAU89
DT 09-A
XX Vacc
XW Vacc
XW hepa
XX Vacc
XW hepa
XX Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW Ineas
XW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       र
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This invention describes a novel particle (A), comprising a protein coat with a fusion protein (FP), and, inside the coat, a nucleic acid (I) including the sequence for a virus-specific packaging signal (psi) and a structural gene. FP contains a virus protein (VP), a peptide (P) that mediates cell permeability and a heterologous cell-specific binding site (RGD). The invention also describes (I) producing (A) in which FP (COTE an LHBs (large surface protein of hepatitis B virus (HBV)) and RGD; (2) preparing (A) in which FP contains an HBV core antigen (HBcAg), (P) and RGD; (3) FP; (4) DNA encoding FP; and (5) expression vector containing the DNA of (d). The products of the invention are used in gene therapy of cells and tissues, in vivo or ex vivo. This sequence therapy are the function protein which is described in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 14; Fig 2; 34pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            comprises nucleic of viral protein,
                                                                                                                                                                                                                                                                                                                                                                                                           Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV gpl40; measles virus N protein; bee venom phospholipase; Th type 2 T-helper; Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B virus core antigen variant (HBcAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAU80921 standard; Protein; 212
                                                                                                                                                                                                                                                                                                                          Hepatitis B virus.
                                                                                                                                                 02-MAY-2001; 2001WO-1B00741.
                                                                                                                                                                                                                                                                      WO200185208-A2
                                                                                                                                                                                                                                                                                                                                                                                        multiple
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                         05-MAY-2000;
(CYTO-) CYTOS BIOTECHNOLOGY AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MPLSSIFSRIGDPTVQASKLCLGWLWGMDIDPYKBFGATVELLSFLPSDFFPSVRDLLDT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VNTNMGLKFROLLWFHISCLTFGRETVIEYLVSFGVWIRTPDAYRPDNAPILSTLPETTV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \rangersprrrtpsprrrrsqsprrrrsqsrepqc 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASALYREALESPEHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSY 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VRRRGRSPRRRTPSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                        sclerosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               215 AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                            2000US-202341P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acid in protein coat permeability peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1148; DB 21;
Pred. No. 2.5e-109;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  that includes a fusion protein and cell-binding site -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

AAW50250 ID AAWS XX

AAW50250 standard;

Protein;

212 AA

```
CC molecular scatfold (molecular scatfold) which comprises a core particle such as a bacterial pilus or pilin protein, a recombinant form CC of the protein, a virus-like particle or a hepatitis B virus capsid CC protein (HBcAg), and an organiser; and (b) an antigen or antigenic determinant contered and repetitive antigen array. Suitable continued to form an ordered and repetitive antigen array. Suitable contered peptides and influenza M2 antigen. The composition (or vaccine) is useful for immunisation, by administration to a subject, where the administration produces an immune response, such as humoral, cellular or protective immune response, preferably a Th type 2 Thelper (Th2) conjugation of vaccines antibodies specific for the antigenic determinant. The administration induces antibodies specific for the subject. The subject does not generate a Th2 subtype that is specific for pilus or pilin production of vaccines for prevention of infectious diseases such as reproduction of vaccines for prevention of infectious diseases such as production of vaccines for prevention of infectious diseases such as production of vaccines and chronic diseases induced or accelerated by a Th type cancer, and chronic diseases induced or accelerated by a Th1 type cancer, and chronic diseases induced or accelerated by a Th1 type antibodies and specific immune response of the Th2 type and allows the catation of highly efficient vaccines against infectious diseases, and creation of highly efficient vaccines against infectious diseases, and creation incorporated into the compositions of the invention.

CC protein incorporated into the compositions of the invention.
                                                                                                      Ś
                                                                                                                                             밁
                                                                                                                                                                             8
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                   Ş
                                S
                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                             Matches 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (DUNA/)
(BACH/)
(TISS/)
(LECH/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 227-228; 287pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI, 2002-055561/07
                                                                                                                                                                                                                                                                                                                                                                    Sequence
190
                                    193
                                                                        130
                                                                                                        133
                                                                                                                                                                                                                     15
                                                                                                                                                                                                                                                       13
                                                                                                                                             75
                                                                                                                                                                                 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               invention relates to a composition comprising: (a) a non-natural scaffold (molecular scaffold) which comprises a core
                                                                                             LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                  EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEPRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                                                     PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP
                            PSPRRRRSQSPRRRRSQSREPQC
                                                                      LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAFILSTLFETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        שי
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ) BACHMANN M.
) TISSOT A.
) LECHENER F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DUNANT N
                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dunant N,
                                                                                                                                                                                                                                                                                                                                                                    212 AA;
                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                               91.3%;
97.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bachmann M,
                                                                                                                                                                                                                                                                                            Score 1048.5; DB:
Pred. No. 3.7e-99;
0; Mismatches 0
     212
                                        215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tissot A,
                                                                                                                                                    ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lechener
                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                    23;
                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                    192
                                                                                                                                                      129
                                                                                                                                                                                                                               74
```

```
밁
                                                                                  S
문
                        S
                                                                                                                   뭐
                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                   This polypeptide comprises the hepatitis B virus (HBV) 25 kDa (p25) CC Bridence is provided that HBV replication is inhibited in the CC presence of high levels of HBV precore or precore-related proteins. CC These proteins can be incorporated into HBV nucleocapsids along the provided component, and thereby render the nucleocapsids (see AAM50251), which is the usual component, and thereby render the nucleocapsids (cc expression of the precore proteins, or certain variants of them, cc expression of the precore proteins, or certain variants of them, cc expression of the precore proteins, or certain variants of them, cc inhibitory proteins include p25, p22 (see AAW50231), Met-p22 (see AAW50242), p18 (see AAW50236), Met-p18 (see AAW50238). The inhibitory proteins can be produced by recombinant methods using claimed expression vectors and host cells. They can be provided exogenously to the target cells for construct that directs overexpression of an inhibitory protein in CC construct that directs overexpression of an inhibitory protein in
                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 197
                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 15; Page 35; 60pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA encoding proteins which can be incorporated with wild type nucleocapsid subunit(s) into a viral nucleocapsid - useful for inhibition of viral replication, especially hepatitis B virus
190
                           193
                                                          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1998-193325/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Melegari M,
                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-SEP-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viral replication; inhibitor; HBV; nucleocapsid; gene therapy; hepatocyte; liver; p25 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus precore p25 polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GEHO ) GEN HOSPITAL CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9809649-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-SEP-1998
                                                                                                                                                 73
                                                                                                                                                                                15
                                                                                                                                                                                                               3
                                                                LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSFRRRT
                   PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                            EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL 132
                                                                                                                                                                                           PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                          EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                     PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                       90.6%;
ilarity 97.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scaglioni PP,
                                                                                                                                                                                                                                                                                                      ă,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96US-0025370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97WO-US15500
                                                  TEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                    Score 1040.5; DB 19;
Pred. No. 2.5e-98;
0; Mismatches 1; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wands
                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                               Length 212;
                                                                                                                                                                                                                                 5; Gaps
                                                                             192
                                                                                                                                                                                                                                 ۲,
```

```
ARESULT 4
ARABI
ARA PROPRIES
ARA ARABI
XX ARABI
XX ARABI
XX Hepa
XX Hepa
XX Hepa
XX Hepa
XX Hepa
XX Hepa
XX PPT Pept
FT Pept
FT Pept
FT Prot
FT Prot
XX XX
XX WO20
XX WO20
XX WO20
XX WO20
XX WO20
XX WO20
XX The
PT Gehi
XX WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR WPI;
DR W
                   밁
                                                               Ş
                                                                                                                      뭐
                                                                                                                                                                S
                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 197; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (HBcAg) fusion proteins and polynucleotides encoding such proteins. Sequences of the invention are useful in methods of prophylactic or therapeutic vaccination or to manufacture medicaments for prophylactic or therapeutic vaccination of the human or animal body against HBV, e.g. against viral hepatitis. They are also useful as a prophylactic vaccine against e.g. hepatitis c virus, influenza, polio, herpes, rabies, acquired immune deficiency syndrome (AIDS) or foot-and-mouth
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B (HB) core antigen fusion proteins, useful as vaccines the prophylactic or therapeutic treatment of humans or animals aga e.g. HB virus, viral hepatitis, hepatitis C virus, influenza, or foot-and-mouth disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Page 24-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-APR-2000; 2000EP-0107118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-APR-2001; 2001WO-GB01607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis B virus core antigen; HBcAg; prophylactic; viral therapeutic; vaccine; acquired immune deficiency syndrome; polio; herpes; rabies; AIDS; foot-and-mouth disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200177158-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MEDE-) MEDEVA EURO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis B virus core antigenic protein (HBcAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAE19793 standard; Protein; 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-JUN-2002
                                                                                                                                                                        73
                                                                                                                                                                                                                            15
                                                                                                                                                                                                                                                                              <u>۳</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            present invention relates to hepatitis B virus (HBV) core antigen
LWFHISCLTFGRETVIEYLVSFGVWIRTDPAYRDPNAPILSTLDETTVVRRRGRSPRRRT
                                                                                                                                       EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                          PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                            PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                              EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2002-239995/29.
DB; AAD31509.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . The present sequence is hepatitis B virus core antigenic (HBcAg).
                                                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                   A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1..29
/label= Signal-peptide
30..212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /label= Mature_HBc_protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                                                     90.6%; Score 1040.5; DB
97.0%; Pred. No. 2.5e-98;
tive 0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Stuart D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rowlands
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D,
                                                                                                                                                                                                                                                                                                                                                                    DB 23;
                                                                                                                                                                                                                                                                                                                     1,
                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                      212;
                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hepatitis; influenza;
                                                                                                                                                                                                                                                                                                               Gaps
                                                       192
                                                                                                                                                                                                                                                                72
                                                                                                        129
                                                                                                                                                                                                                                                                                                               <u>بر</u>
```

ঠ

193

215

```
RESULT 5
AAE198
ID AAE29
XX AAE1
XX AAE2
XX BOT 18-C
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX Heps
XX The
XX The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC Alta
CC The
CC The
CC The
CC The
CC Alta
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC The
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
CC THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
   밁
                                                      S
                                                                                                                                           밁
                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 197; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus; HBV; infection; virucide; fungicide; cytostatic; immunostimulant; vaccine; ribavirin; immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to a composition comprising ribavirin and an antigen preferably non structural 3 protein (NS3)/Ah fragment of hepatitis C virus (HCV) genome or a peptide or nucleic acid of HCV sequence. The composition is useful for enhancing an immune response to a hepatitis C antigen in humans, domestic, sport or pet species and as vaccines for treating and preventing HCV infections. The composition is also useful for treating viral, bacterial, fungal diseases and cancer. The present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen (HBCA9) and E antigen the present sequence is Hepatitis B virus C antigen the present sequence is Hepatitis B virus C antigen the present sequence is Hepatitis B virus C antigen the present sequence is Hepatitis B virus C antigen the present sequence is Hepatitis B virus C antigen the present sequence is Hepatitis B virus C antigen the present sequence is Hepatitis B virus C antigen the present s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-AUG-2000; 2000US-225767P
29-AUG-2000; 2000US-229175P
03-NOV-2000; 2000US-0705547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-AUG-2001; 2001WO-IB01808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200213855-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis B virus C antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAE19898 standard; Protein; 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vaccine compositions for treating and preventing disease, preferably hepatitis C virus infection, comprises ribavirin and antigen that has epitope present in hepatitis C virus -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 11; Page 82; 120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TRIP-) TRIPEP AB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (HBeAg) sequence.
                                                                 193
       190
                                                                                                                                                                                                                        133
                                                                                                                                                                                                                                                                                                 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2002-241837/29
                                                                                                                                           EHCSPHITALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                    EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                            PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                             PSPRRRRSQSPRRRRSQSREPQC 215
PSPRERESOSPRERESOSRESOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Σ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    immunostimulant; vaccine; ribavirin; immune response; cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hultgren
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 2.5e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (HBcAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and E antigen (HBeAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .5e-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>'</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ведиепсе
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      antigen
                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1,
```

```
ARBSULT 6
ARBILIT 1
ARBILIT ARABITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION ARBITION A
밁
                                                        S
                                                                                                                                                      Query Match
Best Local
                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAE17018;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAE17018 standard; Protein;
                                                                                                                                                                                                                                                                                                                                          carrier to present the epitope to the immune system. This chimeric protein or its nucleic acid is useful as a vaccine or in a method of protein or its nucleic acid is useful as a vaccine or in a method of prophylactic or therapeutic vaccination of the human or animal body, particularly against HBV. The nucleic acid encoding the protein may be used in gene therapy or DNA vaccination protocols. The chimeric protein or its nucleic acid may also be used as the basis of a prophylactic vaccine against a range of diseases, e.g. HBV, hepatitis prophylactic vaccine against a range of diseases, e.g. HBV, hepatitis prophylactic vaccine systems (HCV), influenza, foot-and-mouth a virus (HAV), hepatitis C virus (HCV), influenza, foot-and-mouth a virus (HCV), salmonelosis, whooping cough, salmonelosis, typhoid, food poisoning, diarrhoea, meningitis or gonorrhea. The present sequence is Hepatitis B virus core antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            prophylactic; gene therapy; vaccine; nephtitis A virus; nerver, hepatitis C virus; HCV; influenza; foot-and-mouth disease; diarrhoea; tuberculosis; polio; rabies; acquired immunodeficiency syndrome; AIDS dengue fever; yellow fever; malaria; whooping cough; salmonellosis; food poisoning; meningitis; gonorrhea; antiviral; antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to modified proteins comprising hepatitis B virus (HBV) core antigen (HBCAg) wherein one or more of the four arginine repeats has been deleted and the protein comprising the C-terminal cysteine of HBCAg. The deleted region may be replaced by an epitope from a protein other than HBCAg, in which case the HBCAg acts as a carrier to present the epitope to the immune system. This chimeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New proteins comprising a modified hepatitis B core antigen, usefu
a vaccine in prophylactic or therapeutic vaccination of the human
animal body, particularly against hepatitis B virus infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-JUN-2000; 2000GB-0015308
06-OCT-2000; 2000GB-0024544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-JUN-2001; 2001WO-GB02817.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis B virus; HBV; core antigen; HBCAg; immune system; prophylactic; gene therapy; vaccine; hepatitis A virus; HAV;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-PSDB; AAD27422.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200198333-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 39-40; 40pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2002-098223/13.
                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                  (HBcAg).
                                                               13
   15
PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CELLTECH PHARM LTD
                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Li J,
                                                                                                                                                                                                                                                             212 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first
                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pumpens P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HBV) core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entry)
                                                                                                                                                                90.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antigen (HBcAg).
                                                                                                                                  <u>..</u>
                                                                                                                                                                Score 1040.5;
Pred. No. 2.56
                                                                                                                                        Mismatches
                                                                                                                                                                                                        DB
                                                                                                                                                                                                 23;
                                                                                                                                        Indels
                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             typhoid;
                                                                                                                                                                                                           212;
                                                                                                                                        <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           herpes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                useful as
                                                                                                                                            Gaps
```

۳.

```
RESULT 7

AAG66924

ID AAG6

XX AAG6

XX AAG6

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX Hepa

XX NO2

PR 07-1

XX NO2

PR 07-1

XX NO3-1

PR 07-1

XX NO4

PR 03-1

PR 07-1

XX End

XX Fr

XX NO4

PI Stu

XX NO4

PI PT PO1

XX Hepa

XX Hepa

XX Hepa

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

XX End

                                                                                                                                                                            The invention relates to the complete nucleic acid sequence of a new CC (human hepatitis B virus (HBV) genotype, provisionally named genotype GC G. This genotype was found with a high prevalence in patients CC chronically infected with HBV and residing in Europe and the USA. The CC circuit relates to a fully defined sequence of 3248 nucleotides as CC given in specification, a sequence with 92% identity to the given CC sequence, or sequence that is degenerate to the mentioned sequences. CC meses polymucleotides are useful for HBV genotyping. The proteins CC encoded by the polymucleotides are useful for detecting antibodies in CC divided sample. Ligands that bind to the proteins and antibodies of rected against the proteins are useful for detecting the proteins CC and for detecting HBcAg and HBcAg (precore precursor proteins). They can also useful for preparing a vaccine or medicament for treating CC are also useful for preparing a vaccine or medicament for treating CC HBV infections. The present sequence is provided in an amino acid compared the proteins of the different CC HBV reportures.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
              Query Match
Best Local Similarity
Matches 196; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel isolated and/or purified hepatitis B virus polypeptide and polynucleotide sequences that are phylogenetically different from genotype A-F molecules, useful for HBV diagnosis, prophylaxis and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Stuyver L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-DEC-1999;
07-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-NOV-2000; 2000WO-EP11526.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200140279-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (INNO-) INNOGENETICS NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HBV genotype D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG66924 standard; Protein; 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSRESQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHCSPHHTALRQAILCWGELMTLATWVGVNLEDDEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             antiviral;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                            212
              90.4%;
ilarity 96.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Van Geyt C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    virus; HBV;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first
                                                                                                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5; 94pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99EP-0870252.
99US-0169287.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          preCore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HBV; preCore; Core; preS1; preS2; HBS; HBX; I vaccine; genotype G; genotyping; HBcAg; HBeAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Core
                            Score 1037.5; DI
Pred. No. 5e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gendt
        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŝ
                                                           몂
                                                           22;
        Indels
                                                     Length
                                                        212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HBX; HBPol;
  5.
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    132
<u>ب</u>
```

```
RESULT 8
AAU80914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                        05-MAY-2000; 2000US-202341P
                                                                                                                                                                                                                                                                                         02-MAY-2001; 2001WO-IB00741.
                                                                                                                                                                                                                                                                                                                                                                           Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV gp140; measles virus N protein; bee venom phospholipase; Th type 2 T-helf Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                    (SEBB/)
                                                                                                                                                                                                                                                                                                                 15-NOV-2001
                                                                                                                                                                                                                                                                                                                                   WO200185208-A2
                                                                                                                                                                                                                                                                                                                                                      Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                        multiple
                                                                                                                                                                                                                                                      (CYTO-) CYTOS BIOTECHNOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAU80914 standard; Protein; 212
                                                                                                                                                                                                                          (BACH/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                               2002-055561/07.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSRBSQC 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRGRGBRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EHCSPHHTALROAILCWGELMTLATWVGVNLEDP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLFSDFFFSVRDLLDTASALYRDALESF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                    ָּט
                                                                                                                                                                                                     TISSOT A.
LECHENER F.
                                                                                                                                                                                                                                  DUNANT
                                                                                                                                                                                                                                                                                                                                                                        sclerosis.
                                                                                                                                                                                  Dunant N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                          virus core antigen variant (HBcAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entry)
                                                                                                                                                                                 Bachmann
                                                                                                                                                                                                                                                     გ
G
                                                                                                                                                                                 Ξ,
                                                                                                                                                                                Tissot A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                           #19.
                                                                                                                                                                                                                                                                                                                                                                                                                  Th type 2 T-helper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72
```

The invention relates to a composition comprising: (a) a non-natural molecular scaffold (molecular scaffold) which comprises a core particle such as a bacterial pilus or pilin protein, a recombinant for the protein, a virus-like particle or a hepatitis B virus capsid protein (HBcAg), and an organiser; and (b) an antigen or antigenic determinant, where the molecular scaffold and antigenic determinant interact to form an ordered and repetitive antigen array. Suitable antigenic determinants include JUN, FOS, HIV gp140, measles virus N

Lon

phospholipase,

N, FOS, HIV g Sinbis virus

82

antigenic organizer

New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein

Disclosure;

Page 222; 287pp; English.

```
88888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cc derived peptides and influenza M2 antigen. The composition (or vaccine) is useful for immunisation, by administration to a subject, where the cc administration produces an immune response, such as humoral, cellular or cc protective immune response, preferably a Th type 2 T-helper (Th2) cc response that is specific for the antigenic determinant. The callular or cc does not generate a Th2 subtype that is specific for the subject cc of a subtype corresponding to the Th2 subtype in the subject of a subtype corresponding to the Th2 subtype in the subject of production of vaccines for prevention. The composition is useful for the production of vaccines for prevention of infectious diseases such as cc production of vaccines for prevention of infectious diseases such as cc production of vaccines for prevention of infectious diseases such as cc production of vaccines, syphilis, malaria, and for treating allergy, cancer, and chronic diseases induced or accelerated by a Th1 type composition is useful to generate defined self-specific contibudies and specific immune responses of the Th2 type and allows the creation of highly efficient vaccines sqainst infectious diseases, and cc reation of highly efficient vaccines sqainst infectious diseases, and cc protein incorporated into the compositions of the invention.
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAU80915 standard; Protein; 212 AA.
                                                                                                                                                                                                          Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV gp140; measles virus N protein; bee venom phospholipase; Th type 2 T-helper; Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                                                                                                                                    Hepatitis B virus core antigen variant (HBcAg) #20.
                                                                                                                                                                                                                                                                                                                                                                                       09-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                         WO200185208-A2
                                                                                                                                                          Hepatitis B virus
                                                                                                                                                                                           multiple
                  05-MAY-2000; 2000US-202341P
                                                 02-MAY-2001; 2001WO-IB00741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRT 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSPRRRRSQSPRRRRSQSRBPQC 215
                                                                                                                                                                                               Bclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        212 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1037.5; D
Pred. No. 5e-98;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1,
```

```
cc molecular scaffold (molecular scaffold) which comprises a core comperitive such as a bacterial pilus or pilin protein, a recombinant form cc particle such as a bacterial pilus or pilin protein, a recombinant form cc particle such as a bacterial pilus or pilin protein, a recombinant form cc of the protein (HBCAS), and an organiser; and (b) an antigen or antigenic determinant, where the molecular scaffold and antigenic determinant cc interact to form an ordered and repetitive antigen array. Suitable cc interact to form an ordered and repetitive antigen array. Suitable cc interact per protein, bee venom phospholipase, Sinbis virus B2 protein, amyloid beta creation bee venom phospholipase, Sinbis virus B2 protein, amyloid beta creation bee venom phospholipase, Sinbis virus B2 protein, amyloid beta creatived peptides and influenza M2 antigen. The composition (or vaccine) cc administration produces an immune response, make a bumoral, cellular or creating stration produces an immune response, but as subject, where the cc administration induces antibodies specific for the antigenic determinant. The composition induces antibodies specific for the antigenic determinant of a subtype corresponding to the Th2 subtype in the subject. The subject cof a subtype corresponding to the Th2 subtype in the subject of a subtype corresponding to the Th2 subtype in the subject. The subject cof a subtype corresponding to the Th2 subtype in the subject of production of vaccines for prevention of infectious diseases such as cc production of vaccines for prevention of infectious diseases such as cc production of vaccines for prevention of infectious diseases such as cc production of highly efficient vaccines adainst infectious diseases, and creation of highly efficient vaccines against infectious diseases, and creation incorporated into the compositions of the invention.

CC concer and chronic diseases induced or accelerated by a Th1 type and allows the composition of the invention.
                                                                                                                                                                               ફ
                                                                                                                                                                                                                     皮
                                                                                                                                                                                                                                                      S
                                                                                                       S
                                                                                                                                              밁
                              S
                                                                         片
                                                                                                                                                                                                                                                                                            Matches 196;
                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (CYTO-)
(SEBB/)
(DUNA/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 223; 287pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sebbel P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BACH/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-055561/07
                                                                                                                                                                                                                                                                                                                                                                   Sequence
190
                                    193
                                                                                                         133
                                                                       130
                                                                                                                                                                                                                                                          13
                                                                                                                                                75
                                                                                                                                                                                 73
                                                                                                                                                                                                                     15
                                                                                                                                                                                                                     PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                            LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                 EHCSPHHTALRQAILCWGELMTLATWYGYNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEBBEL P.
DUNANT N.
BACHMANN M.
                                                                                                                                              PSPRRRRSQSPRRRRSQSRESQC
                                PSPRRRRSQSPRRRRSQSREPQC 215
                                                                       LECHENER F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CYTOS BIOTECHNOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dunant N,
                                                                                                                                                                                                                                                                                                                                                                       212 AA;
                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                 96.64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bachmann M, Tissot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĄĢ
                                                                                                                                                                                                                                                                                                Score 1037.5; DB pred. No. 5e-98; 1; Mismatches
                                                                                                                                                                                                                                                                                                                                          ВB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lechener
                                                                                                                                                                                                                                                                                                      1:
                                                                                                                                                                                                                                                                                                                                          23;
                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                         Length 212;
                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                             129
```

۳.

AAU80916

standard;

Protein; 212

₹

```
CC molecular scaffold (molecular scaffold) which comprising: (a) a non-natural CC particle such as a bacterial pilus or pilin protein, a recombinant form CC of the protein, a virus-like particle or a hepatitis B virus capsid CC of the protein, a virus-like particle or a hepatitis B virus capsid CC of the protein (HBCAg), and an organiser; and (b) an antigen or antigenic CC interact to form an ordered and repetitive antigen or antigenic CC interact to form an ordered and repetitive antigen array. Suitable CC antigenic determinant sinclude JUN, FOS, HIV gp140, measles virus N CC derived peptides and influenza M2 antigen. The composition (or vaccine) CC is useful for immunisation, by administration to a subject, where the CC derived peptides an immune response, preferably a Th type 2 T-helper (Th2) CC deministration induces an immune response, such as humoral, cellular or CC protective immune response, preferably a Th type 2 T-helper (Th2) CC administration induces antibodies specific for the antigenic determinant (c) of a subtype corresponding to the Th2 subtype in the subject. The subject CC administration of vaccines for prevention of infectious diseases such as production of vaccines for prevention of infectious diseases such as production of vaccines for prevention of infectious diseases such as production of vaccines, syphilis, malaria, and for treating allergy, cancer, and chronic diseases induced or accelerated by a Th1 type creating allergy, cancer, and chronic diseases induced or accelerated correction of highly efficient vaccines against infectious diseases, and correction of highly efficient vaccines against infectious diseases, and correction of highly efficient vaccines against infectious diseases, and correction of highly efficient vaccines against infectious diseases, and corrections are produced or accelerated by a Th1 type immune response. The present sequence is a peptide or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antigenic
organizer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sebbel P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-MAY-2001; 2001WO-IB00741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatiiis B virus capsid protein; JUN; FOS; HIV gp140; measles virus N protein; bee venom phospholipase; Th type 2 T-helf Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-MAY-2000; 2000US-202341P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                multiple sclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus core antigen variant (HBcAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DUNA/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEBB/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         invention relates to a composition comprising: (a) a non-natural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        composition, useful for vaccine production, compigenic determinant and non-natural molecular scafanizer and core particle such as bacterial pilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2002-055561/07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ) BACHMANN M.
) TISSOT A.
) LECHENER F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DUNANT N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CYTOS BIOTECHNOLOGY AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dunant N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Page 223-224; 287pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bachmann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tissot A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lechener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            comprises antigen or scaffold comprising ilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Th type 2 T-helper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ä
```

```
RESULT 11
AAU80919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SXS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                             New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                            Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV gp140; measles virus N protein; bee venom phospholipase; Th type 2 T-helper; Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                      Sebbel P,
                                                                                                                                                                             (DUNA/)
                                                                                                                                                                                                                        05-MAY-2000; 2000US-202341P
                                                                                                                                                                                                                                             02-MAY-2001; 2001WO-IB00741
                                                                                                                                                                                                                                                                                                                 Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis B virus core antigen variant (HBcAg)
                                                                                                                                                                                                                                                                      15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-APR-2002
                                                                                                                                                                    BACH/)
                                                                                                                                                                                           (SEBB/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAU80919 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein incorporated into the compositions of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13
                                                                                                2002-055561/07.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSPRRRRSOSPRRRRSOSRESOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WFHISCLTFGRETVIBYLVAFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LMFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHCSPHHTALRQAILCWGBLMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWGWDIDPYKBFGATVELLSFLPSDFFPSVRDLLDTASALYRBALESP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196;
                                                                                                                                                                              SEBBEL
                                                                                                                                            LECHENER F.
                                                                                                                                                      BACHMANN M.
TISSOT A.
                                                                                                                                                                                                 CYTOS BIOTECHNOLOGY AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                        sclerosis.
                                                                                                                     Dunant N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                              סי א
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein; 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96.6%;
                                                                                                                   Bachmann M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1037.5; D
Pred. No. 5e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                  Tissot A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BB
                                                                                                                   Lechener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۳.
```

The invention relates Disclosure; Page 226;

ដ

composition comprising:

a

a non-natural

287pp; English.

```
888888888888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cc molecular scaffold (molecular scaffold) which comprises a core cc particle such as a bacterial pilus or pilin protein, a recombinant form of the protein, a virus-like particle or a hepatitis B virus capsid cc protein (HBcAg), and an organiser; and (b) an antigen or antigenic cc determinant, where the molecular scaffold and antigenic determinant include JUN, FOS, HIV gp140, measles virus N CC antigenic determinants include JUN, FOS, HIV gp140, measles virus N CC antigenic devenum phospholipase, Sinbis virus E2 protein, amyloid beta CC protein, bee venum phospholipase, Sinbis virus E2 protein, amyloid beta CC derived peptides and influenza M2 antigen. The composition (or vaccine) CC derived peptides and influenza M2 antigen. The composition (or vaccine) CC definistration produces an immune response, such as humoral, cellular or protective immune response, preferably a Th type 2 T-helper (Th2) CC protective immune response, preferably a Th type 2 T-helper (Th2) CC administration induces antibodies specific for the antigenic determinant. The composition is useful for the composition is useful for the subject of a subtype corresponding to the Th2 subtype in the subject. The subject CC administration of vaccines for prevention of infectious diseases such as production of vaccines for prevention of infectious diseases such as cc production of vaccines for prevention of infectious diseases such as cc production of vaccines for prevention of infectious diseases such as cc production of such as arthritis, malaria, and for treating allergy, cancer, and chronic diseases induced or accelerated by a Th1 type immune response. The present sequence is a peptide or creation incorporated into the compositions of the invention.
                                                                                                                                                                                                                                                                                                                                                        RESULT 12
AAU80920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
Query Match
Best Local Simi
Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV 9p140; measles virus N protein; bee venom phospholipase; Th type 2 T-helper; Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                      Hepatitis B virus core antigen variant (HBcAg) #25
                                                                                                                                                                                                                                                                                                                                        AAU80920 standard; Protein;
                                                   multiple
                                                                                                                                                                                                                                                               09-APR-2002
             Hepatitis B
                                                                                                                                                                                                                                                                                                                                                                                                                                     190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EHCSPHHTALRQAILCWGELMTLATWYGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LWFH18CLTFGRETVIBYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNWGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                     PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                       sclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1035.5; Di
Pred. No. 8e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72
```

밁 S

75 73

EHCSPHHTALROAILCWGELMTLATWVGVNLEDP----

S

LWFHISCLTPGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT 192

EHCSPHHTALROAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFROL

ASRDLVVSYVNTNMGLKFRQL

129

132

۲

```
determinant, where the molecular scaffold and antigenic determinant of the molecular scaffold and antigenic determinant of the molecular scaffold and antigen array. Suitable contributed to form an ordered and repetitive antigen array. Suitable protein, bee venom phospholipase, Sinbis virus E2 protein, amyloid beta controlled peptides and influenza M2 antigen. The composition (or vaccine) controlled peptides and influenza M2 antigen. The composition (or vaccine) controlled peptides and influenza M2 antigen. The composition or vaccine) controlled peptides and influenza M2 antigen. The composition or vaccine controlled peptides and influenza M2 antigen. The composition controlled peptides antipodies specific for the as humoral, cellular or controlled peptide or antipodies appecific for the antigenic determinant. The composition is subtype in the subject. The subject controlled peptide or antipodies specific for pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or pilus or
묽
                                      5
                                                                                     Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200185208-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-MAY-2001; 2001WO-IB00741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   molecular scaffold (molecular scaffold) which Comprises a core particle such as a bacterial pillus or pilin protein, a recombinant i of the protein, a virus-like particle or a hepatitis B virus capsid of the protein, a virus-like particle or a hepatitis B virus capsid protein (HBAg), and an organiser; and (b) an antigenic determinant determinant, where the molecular scaffold antigenic determinant. Suitable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 227; 287pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organizer and core particle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New composition, useful antigenic determinant an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sebbel P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (DUNA/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (CYTO-)
                                                                                                                                                                         Sequence
                                                                                                       Local
  15
                                          u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2002-055561/07.
PTVQASKLCLGWLWGNDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                        196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CYTOS BIO
SEBBEL P.
DUNANT N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LECHENER F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BACHMANN M.
TISSOT A.
                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dunant N,
                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-202341P.
                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BIOTECHNOLOGY AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  relates
                                                                                                                                                                           ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         es to a composition comprising: (a) a non-natural (molecular scaffold) which comprises a core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ul for vaccine production, comprises antigen or and non-natural molecular scaffold comprising rticle such as bacterial pilus or pilin protein
                                                                                                              90.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bachmann
                                                                                                              Score 1035.5;
Pred. No. 8e-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Σ,
                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tissot A,
                                                                                                                   8e-98;
                                                                                                                                         DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lechener
                                                                                                 <u>ب</u>
                                                                                                 Indels
                                                                                                                                         Length 212;
                                                                                                 <u>ن</u>
                                                                                                   Gaps
                                                             72
```

۳,

```
determinant, where the molecular scaffold and antigenic determinant interact to form an ordered and repetitive antigen array. Suitable antigenic determinants include JUN, FOS, HIV 99140, measles virus N protein, bee venom phospholipase, Sinbis virus E2 protein, amyloid beta derived peptides and influenza M2 antigen. The composition (or vaccine) is useful for immunisation, by administration to a subject, where the camposition groduces an immune response, such as humoral, cellular or cresponse that is specific for the antigenic determinant. The administration induces antibodies specific for the antigenic determinant of a subtype corresponding to the Th2 subtype in the subject. The subject of as subtype corresponding to the Th2 subtype in the subject. The subject polypeptide or antigenic determinant. The composition is useful for the production of vaccines for prevention of infectious diseases such as human immunication of infectious diseases such as human immunication on the composition is useful for the production of vaccines for prevention of infectious diseases such as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
AAU80922
ID AAU80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                        molecular scaffold (molecular scaffold) which comprises a core particle such as a bacterial pilus or pilin protein, a recombinant f of the protein, a virus-like particle or a hepatitis B virus capsid protein (HBcAg), and an organiser; and (b) an antigen or antigenic determinant, where the molecular scaffold and antigenic determinant
                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Page 228-229; 287pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                            New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV gp140; measles virus N protein; bee venom phospholipase; Th type 2 T-helper; Th2; Sinbis virus E2 protein; amyloid beta; influenza M2 antigen; human immunodeficiency virus infection; viral hepatitis; measles; chicken pox; pneumonia; tuberculosis; syphilis; malaria; allergy; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2002-055561/07.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sebbel P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-MAY-2001; 2001WO-IB00741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-NOV-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BACH/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09~APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAU80922 standard; Protein; 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSPRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEBBEL P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LECHENER F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BACHMANN M.
TISSOT A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CYTOS BIOTECHNOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dunant N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-202341P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                                                                   relates to a composition comprising: (a) a non-natural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 core antigen variant (HBcAg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bachmann M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tissot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ۶
                                                                                                                                                                                                                                                                                                                                                                                                                              pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lechener
                                                                                                                                                                                                                                                                                                   form
```

viral hepatitis, measles,

```
RESULT 14
AAUB0923
ID AAUB0
XX AAUB0
AC AAUB0
AC AAUB0
XX UACCI
KW VACCI
KW Hepat
KW Hepat
KW Hepat
KW Homan
KW Cance
KW Human
KW Cance
KW MULti
XX
Hepat
XX
Hepat
XX
OS-M2
XX
PR 02-M3
XX
PR 05-M3
XX
PR (CYTC
PA (SEBE
PA (DUN)
PA (BACE
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA (BEEL
PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ពួកក្រកួតក្រកួតក្រកួត
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2002-055561/07
                                                                     Sebbel P,
                                                                                                                                                                 (DUNA/)
                                                                                                                                                                                                                                                                               05-MAY-2000; 2000US-202341P
                                                                                                                                                                                                                                                                                                                            02-MAY-2001; 2001WO-IB00741
                                                                                                                                                                                                                                                                                                                                                                              15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                          WO200185208-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    multiple sclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 chicken pox; pneumonia; tuberculosis; syphilis; malari cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis B virus core antigen variant (HBcAg) #28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cancer, and chronic diseases induced or accelerated by a Thi type immune response, such as arthritis, colitis, diabetes and multiple solerosis. The composition is useful to generate defined self-specific antibodies and specific immune responses of the Th2 type and allows the creation of highly efficient vaccines against infectious diseases, and for treating allergy, cancer, and chronic diseases induced or accelerated by a Th1 type immune response. The present sequence is a peptide or protein incorporated into the compositions of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAU80923
                                                                                                                                                                                                              (SEBB/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSPRRRRSQSPRRRRSQSREPQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPPNAPILSTLPETTVVRRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LWFHISCLTFGRETVIEYLVSFGVWIRTPPAYRPNAPILSTLPETTVVRRGRSPRRRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHCSPHHTALROATLCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSPRRRRSOSPRRRRSOSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLSTASALYREALESP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTVQASKLCLGWLWGMDIDFYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP
                                                                                                                                                                                     SEBBEL P.
DUNANT N.
                                                                                                                  LECHENER F.
                                                                                                                                      BACHMANN M.
TISSOT A.
                                                                                                                                                                                                                                  CYTOS BIOTECHNOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard; Protein; 212
                                                                   Dunant N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90.1%;
                                                                   Bachmann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1034.5; D
Pred. No. 1e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                              Tissot
                                                              Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        نا
۲۰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74
```

```
The invention relates to a composition comprising: (a) a non-natural combecular scaffold (molecular scaffold) which comprises a core particle such as a bacterial pilus or pilin protein, a recombinant form confidence of the protein, a virus-like particle or a hepatitis B virus capsid core protein (HBcAg), and an organiser; and (b) an antigen or antigenic determinant, where the molecular scaffold and antigenic determinant include JUN, FOS, HIV gpl40, measles virus N captidity antigenic determinant include JUN, FOS, HIV gpl40, measles virus N captidity derived peptides and influenza M2 antigen. The composition (or vaccine) derived peptides and influenza M2 antigen. The composition (or vaccine) comproduces an immune response, Sinbis virus E2 protein, amyloid beta protective immune response, Sinbis virus E2 protein, amyloid beta comproduced peptides and influenza M2 antigen. The composition (or vaccine) comproduced peptides and influenza M2 antigen. The composition (or vaccine) comproduced peptides antibodies specific for the subject. Where the composition induces antibodies specific for the antigenic determinant. The composition is useful for the subject of a subtype corresponding to the Th2 subtype in the subject. The subject does not generate a Th2 subtype that is specific for pilus or pilin composition of vaccines for prevention of infectious diseases used as composition of vaccines for prevention of infectious diseases used as composition is useful to generate by a Th1 type cancer, and chronic diseases induced or accelerated by a Th1 type cancer and specific immune response of the Th2 type and allows the creating allergy, cancer, and chronic diseases induced or accelerated by a Th1 type immune response. The present sequence is a peptide or protein incorporated into the compositions of the invention.
  ARBSULT 15
AAU80924
ID AAU80
XX AAU80
AC AAU80
XX O9-AE
XX O9-AE
XX Hepat
XX VACCI
KW hepat
KW meas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Page 229-230; 287pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Vaccine; molecular scaffold; pilus; pilin; HBcAg; antigen; hepatitis B virus capsid protein; JUN; FOS; HIV gp140; measles virus N protein; bee venom phospholipase; Th type 2 T-helper;
                                                                                                                            09-APR-2002
                                                                                                                                                                                                      AAU80924 standard;
                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72
                                                                                                                                                                                                                                                                                                                                                                                   EHCSPHHTALRQAILCWGELMTLATWVGVNLEDPEFRGDASRDLVVSYVNTNWGLKFRQL 132
                                                                                                                                                                                                                                                                                                                                    PSPRRRRSQSPRRRRSQSREPQC 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHCSPHHTALRQAILCWGELMTLATWVGVNLEDP----ASRDLVVSYVNTNMGLKFRQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74
                                                                                                                                                                                                                                                                                                         PSPRRRRSQSPRRRRSQSRESQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                    w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212
                                                                                    virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                          (firet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                  core antigen variant (HBcAg) #29.
                                                                                                                                                                                                            Protein; 212
                                                                                                                            entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1034.5; DB Pred. No. 1e-97; O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                             212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲.
```

```
determinant, where the molecular scaffold and antigenic determinant of interact to form an ordered and repetitive antigen array. Suitable cantigenic determinants include JUN, FOS, HIV gp140, measles virus N cantigenic determinants include JUN, FOS, HIV gp140, measles virus N cantigenic determinants include JUN, FOS, HIV gp140, measles virus N cantigenic determinants include JUN, FOS, HIV gp140, measles virus N cantigenic determinant in measure response stratus to a subject, where the cadministration produces an immune response, such as humoral, cellular or cadministration induces an immune response, such as humoral, cellular or cadministration induces antibodies specific for the antigenic determinant. The cadministration induces antibodies specific for the subject. The subject of a subtype corresponding to the Th2 subtype in the subject. The subject does not generate a Th2 subtype that is specific for pilus or pilin can immune deficiency virus, viral hepatitis, measles, chicken pox, the production of vaccines for prevention of infectious diseases such as cantibodies, syphilis, measles, chicken pox, cancer, and chronic diseases induced or accelerated by a Th1 type cancer and specific immune responses of the Th2 type and allows the caretion of highly efficient vaccines against infectious diseases, and chronic diseases induced or accelerated by a Th1 type immune response. The present sequence is a peptide or professional fine the compositions of the Th2 type and allows the careting incorrerated into the compositions of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human immunodeficiency virus infection; viral hepatitis; chicken pox; pneumonia; tuberculosis; syphilis; malaria; cancer; chronic disease; arthritis; colitis; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           multiple sclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Th2; Simbis virus E2 protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200185208-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   particle such as a bacterial pilus or pilin protein, a recombinant of the protein, a virus-like particle or a hepatitis B virus capsic protein (HBcAg) and an organiser; and b an antigen or antigenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New composition, useful for vaccine production, comprises antigen or antigenic determinant and non-natural molecular scaffold comprising organizer and core particle such as bacterial pilus or pilin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (BACH/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SEBB/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-MAY-2000; 2000US-202341P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-MAY-2001; 2001WO-IB00741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          molecular scaffold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 230; 287pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to a composition comprising: (a) a non-natural molecular scaffold (molecular scaffold) which comprises a core
protein incorporated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ָס
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEBBEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LECHENER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BACHMANN M.
TISSOT A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CYTOS BIOTECHNOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dunant N,
    response. The present sequence is a peptide or into the compositions of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bachmann M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ਨ
ਨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       amyloid beta; influenza M2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tissot A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lechener
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         malaria; allergy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antigen;
```

밁 ঠ

PTVQASKLCLGWLWGMDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 74 PTVQASKICLGWLWGWDIDPYKEFGATVELLSFLPSDFFPSVRDLLDTASALYREALESP 72

13 15

Query Match Best Local

Similarity

90.1%;

Score 1034.5; I Pred. No. 1e-97; 2; Mismatches

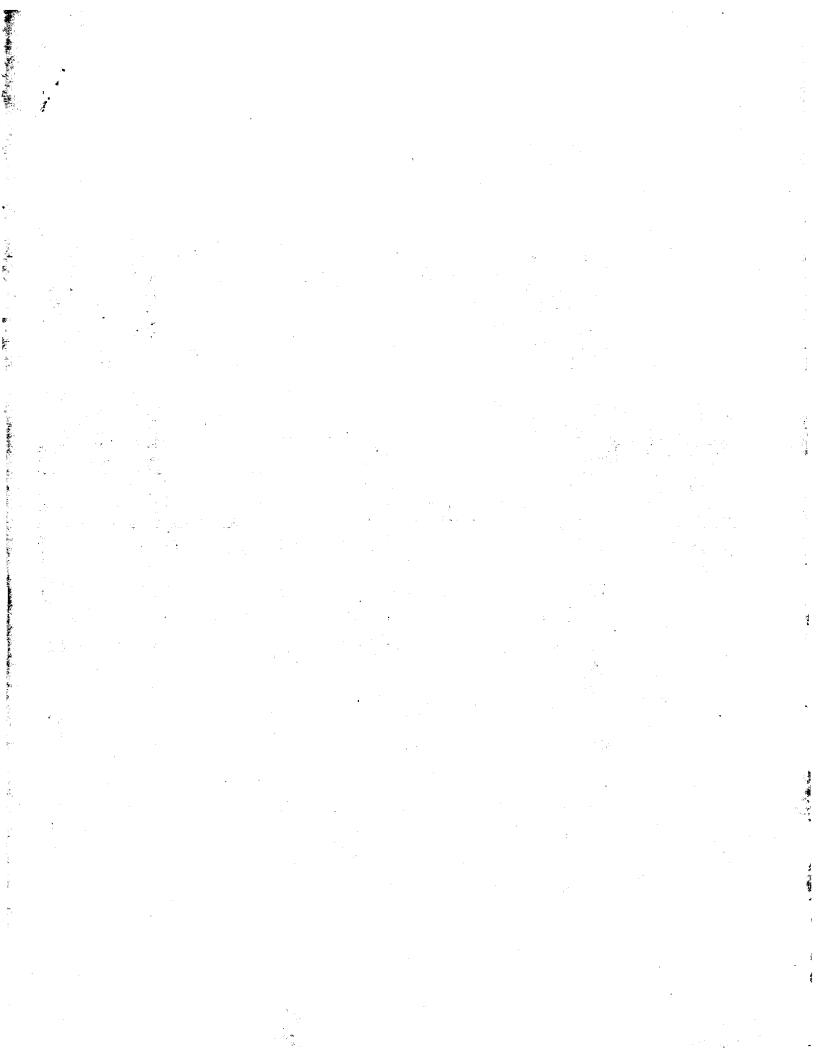
멂

212; <u>ن</u>

Gaps

Conservative

212 AA;



```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw
                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                100
96.7
96.7
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.5
138.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gapop 10.0 , Gapext 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-890-752A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     February 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.3
Copyright (c) 1993 - 2003 Compugen
            389
389
389
537
1786
533
533
533
334
400
400
400
695
695
695
695
701
1081
134
701
1081
1302
701
1302
701
1302
701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2003, 09:16:26; Search time 0.439024 Seconds (without alignments)
1133.686 Million cell updates/s
    VMSA HPBVY
VMSA HPBVR
VMSA HPBVR
VMSA HPBVR
VMSA HPBVP
VMSA HPBVP
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
VMSA HPBVJ
EFG STRRA
VMSA HPBVJ
EFG STRRA
VMSA HPBVJ
EFG STRRA
VMSA HPBVJ
VMSA HPBVJ
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYCLE
EFG MYC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mode1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pil
                P03138 hepatitis b
P03139 hepatitis b
P03139 hepatitis b
P031310 hepatitis b
P031310 hepatitis b
P031310 hepatitis b
P031310 hepatitis b
P031310 hepatitis b
P03131 hepatitis b
P17398 hepatitis b
P17398 hepatitis b
P17399 hepatitis b
P17399 hepatitis b
P17399 hepatitis b
P17399 hepatitis b
P17391 caenorhabdi
Q55179 synechocyst
Q9p1h7 chlamydia m
P03142 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17101 hepatitis b
P17376 saccharomyc
P28371 synechocyst
P039524 mclluscum
P32767 saccharomyc
P1397 hepatitis b
Q05496 shigella fl
P30767 mycobacteri
P30770 streptomyce
P13840 bluetongue
P36262 liberibacte
P13840 synechocyst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cell updates/sec
RESULT 1
VMSA_HPBVY
ID VMSA_HPBVY
AC P03138;
                                                       Antigen.
PROPEP
CHAIN
```

ALIGNMENTS

```
EMBL; V01460; -; NOT ANNOTATED CDS.
EMBL; X02496; CAA26324.1; ALT INIT.
EMBL; M12393; AAA45496.1; ALT_INIT.
PIR; A03703; SAVLAH.
PIR; A03704; SAVLBH.
InterPro; IPR000349; Hepvir_surfag.
Pfam; PF00695; vMSA; 1.
                              CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dokl. Biochem. 271:246-249(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kukain R.A.; "Synthesis of the surface antigen of hepatitis B virus in Escherichia" ^{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pumpen P., Kozlovskaya T.M., Borisova G.L., Dishler A.V., Kalic Y.V., Pudova N.V., Gren
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (CLONE PHB320).
MEDLINE=85204397; PubMed=3996597;
Bichko V., Pushko P., Dreilina D., Pumpen P., Gren E.Y.;
"Subtype ayw variant of hepatitis B virus. DNA primary structure analysis.";
"Englished Proceedings of the control of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patition of the patiti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.

MEDLINE=81012091; Pubmed=399327;

Galibert F., Mandart E., Fitoussi F.,

"Nucleotide sequence of the hepatitis
cloned in E. coli.";

Nature 281:646-650(1979).

[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation updat
Major surface antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEBS Lett. 185:208-212(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus (subtype ayw).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus
NCBI_TaxID=10418;
                              164
164
112
166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                         163
389
4
112
166
MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tiollais P., Charnay P.;
B virus genome (subtype ayw)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Byuchko V.V.,
E.Y., Krievinya V.Y.,
     (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
```

```
ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPETTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 2
VMSA_HPBVA
ID VMSA_HPBVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
  RESULT 3
VMSA HPBVZ
ID VMSA H
AC PO3139
DT 21-JUL
DT 21-JUL
DT 01-OCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 12
                                                                                                                                                                                                                    S
                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CONFLICT
CONFLICT
CONFLICT
CONFLICT
SEQUENCE
Tymsa HPBVZ
P03139;
21-JUL-1986
21-JUL-1986
01-OCT-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the Buropean Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAR-1992
01-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P24025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.

MEDLINE=90266476; PubMed=2345966;

MEDLINE=90266476; PubMed=2345966;

Tong S., Li J., Vitvitski L., Trepo C.;

Tong S., Li J., Vitvitski L., Trepo C.;

"Active hepatitis B virus replication in the presence of anti-HBe is "Active hepatitis B virus replication in the presence of anti-HBe is associated with viral variants containing an inactive pre-C region.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Major surface
                                                                                                                                                                                                                                                                                                                                           CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10411;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis B virus (strain alphal).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M32138; AAA45502.1; -. PIR; B34773; SAVLA1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Virology 176:596-603(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00695; vMSA;
                                                                                                                                                                                     149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nterPro; IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          μ
                                                                                                                                                                                                                        1 prssikskiche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLSSIFSRIGDP
                                                                                                                                                                                     PISSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            309
75
147
150
288
389
                                                                                                                                                                                                                                                                                                                                               112
166
309
389 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Rel. 21, Created)
(Rel. 21, Last sequence up
(Rel. 21, Last annotation
ce antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
        (Rel.
(Rel.
                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  309
75
147
150
290
42766
                                                                                                                                                                                                                                                                                                                                               $
                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12
      . 01, Created)
. 01, Last sequence of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control o
                                                                                                                                                                                                                                                                                                                                           163
389 N
112 N
166 N
309 N
42733 NW;
                                                                                                                                                                                       160
                                                                                                                                                                                                                          12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepvir_surfAg
                                                                                                                                                                                                                                                                                       96.7%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
      sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                             MAJOR SURFACE ANTIGEN.

N.LINKED (GLCNAC. .) (POT

N.LINKED (GLCNAC. .) (POT

N.LINKED (GLCNAC. .) (POT

N.LINKED (GLCNAC. .) (POT

N.LINKED (GLCNAC. .) (POT
                                                                                                                                                                                                                                                                  Pred. No. 0.00
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GLCNAC. . .) (POTENTIAL).
Q -> E (IN REF. 2).
A -> S (IN REF. 2).
L -> I (IN REF. 2).
MTT -> TTP (IN REF. 2 AND 3).
, 6DC9E682DA694F63 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 61; DB
Pred. No. 0.0
); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
,. 0.00052;
0;
                                                                                       389
          update)
                                                                                                                                                                                                                                                                                         DB 1;
0.0012;
                                                                                       ₽
                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 389;
                                                                                                                                                                                                                                                                                                            Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                        <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엺
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                          0
```

```
CCCCCRATER REPRESENTATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 4
VMSA_HPBVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TWSA HPBVR STAN
P03140;
21-JUL-1986 (Rel. (
21-JUL-1986 (Rel. (
15-JUN-2002 (Rel. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pasek M., Goto T., Gilbert W., 21nk B., Schall
Leadbetter G., Murray K.;
Leadbetter B virus genes and their expression
"Heppatitis B virus genes and their expression
Nature 282:575-579(1979).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis B virus (subtype adyw).
Viruses; Retroid viruses; Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Major surface antigen precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; J02202; AAA45487.1; ALT_INIT.
PIR; A93217; SAVLAJ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=81012115; PubMed=399329;
Pasek M., Goto T., Gilbert W., Zink
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000349; Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Antigen.
       This SWISS-PROT entry is copyright. It is produced through a collaboratic between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it
                                                                                                                                               SEQUENCE OF 176-350 FROM N.A.
MEDLINE=85107103; PubMed=3968537;
Takeshima H., Inokoshi J., Namiki M., Shimada J., Omura Takeshima H. Inokoshi T., Namiki M., Shimada J., Omura Takeshima H. Inokoshi T., Wamiki M., Shimada J., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H., Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshi T., Omura Takeshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima H. Inokoshima
                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=83168919; PubMed=6300776;
Ono Y., Onda H., Sasada R., Igarashi K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis B virus (subtype adr)
Viruses; Retroid viruses; Hepad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Major surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=106820;
                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          149 PISSIFSRIGDP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLSS1FSR1GDP
                                                                                                                                                                                                                                                                                                                                                                                                                   subtype adr and adw.";
eic Acids Res. 11:1747-1757(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                          complete nucleotide sequences of subtype adr and adw.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                               Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1
164
112
112
166
309
389 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 kel. 01, Last sequence up
Rel. 41, Last annotation
antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           163
389
4
112
166
309
42801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepvir_surfAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₹,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepadnaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC. . . )
N-LINKED (GLCNAC. . . )
N-LINKED (GLCNAC. . . )
N-LINKED (GLCNAC. . . )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 59; DB 1;
Pred. No. 0.0012;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1069EF6B4679A669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schaller H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sugino Y., Nishioka K.;
s cloned hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cloned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'n
and t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          coli.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mackay
                                                                                                                                                                                                                                                 S.;
                                                                           a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                     surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

밁 Ş

ij

```
RESULT
VMSA_HI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
      Query Match
Best Local S
Matches 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VMSA HPBV4 STANDALL,
P12934; Q67860;
01-OCT-1989 (Rel. 12, Created)
01-OCT-1989 (Rel. 12, Last sequence)
15-UUL-1998 (Rel. 36, Last annotati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 10; Conser
                                                     CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                            Antigen.
PROPEP
CHAIN
                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                   HPBV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                             EMBL; X01587; CAA25747.1; ALT INIT.
EMBL; X01587; CAA25743.1; ALT_INIT.
InterPro; IPR000349; Hepvir_surfAg.
                                                                                                                                                                                                                                                   Nucleic Acids Res. 11:4601-4610(1983).
                                                                                                                                                                                                                                                                                                      MEDLINE=83246570;
                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Antigen.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     modified
                                                                                                                                                                                                                                                                     "Cloning and structural analyses of hepatitis B
                                                                                                                                                                                                                                                                                           Fujiyama A., Miyanohara
                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10409;
                                                                                                                                                                                                                                                                                                                                        Hepatitis B virus (subtype adr4).
Viruses; Retroid viruses; Hepadnaviridas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; V00867; CAA24
PIR; A03705; SAVLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ptam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PLSSIFSRIGDP 12
                                                                                                                        PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PISSIFSRTGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00695; vMSA;
      Similarity
9; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d and this statement is not remove requires a license agreement (S an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       non-profit
and this st
                                           1
175
15
123
177
320
400 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1
175
15
123
177
177
320
400 /
      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAA24234.1; ALT_INIT.
                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              174
400
15
123
177
320
43685
                                                                                                                                                                                                                                                                                                   PubMed=6306594;
                                                              174
400
15
123
177
                                           43542
             75.4%;
75.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 institutions as long as atement is not removed. I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepvir_surfAg
                                                                                                                                                                                                                                                                                          Α.
                                           W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W.
                                       MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                sequence up
    1;
   Score 46; DB 1;
Pred. No. 0.37;
1; Mismatches
                                                                                                                                                                                                                                                                                         Nozaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 54; DB:
Pred. No. 0.01:
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MAJOR SUR
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED (GLCNAC. . .) (PO)
N-LINKED (GLCNAC. . .) (PO)
N-LINKED (GLCNAC. . .) (PO)
N-LINKED (GLCNAC. . .) (PO)
16DB0B15C6CB697A CRC64;
                                                                                                                                                                                                                                                                                      C., Yoneyama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SURFACE ANTIGEN
                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                       400
                                                                                                                                                                                                                                                                                                                                                                                 update
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
0.011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                                                                                                                                                                                                                                       Orthohepadnavirus
  2:
                    Length 400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 400;
                                         CRC64;
                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                    virus DNAs, subtype
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                       Ohtomo N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                   a collaboration
 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                             ch/announce/
 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 commercial
                                                                                                                                                                                                 0
                                                                                                                                                                                                         8
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
밁
                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
VMSA_HE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                        Query Match
Best Local S
                                                                                                                                                                                                                                Matches
                                 Homo sapiens (Human).
Eukaryota; Metazoa; C
Mammalia; Eutheria; P
NCBI_TaxID=9606;
                                                                                                     15-JUL-1998
15-JUL-1998
15-JUN-2002
                                                                                                                                                     HUMAN
                                                                                                                                                                                                                                                                       CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
        SEQUENCE FROM N.A.
TISSUE=Skin;
                                                                                           Beta-defensin
                                                                                                                                   015263;
                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a cobetween the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and fo entities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                  (SAP1).
                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VMSA HPBVP
Q02317;
                                                                                                                                                                                                                                                                                                                                                                     EMBL; M57663; AAA69680.1;
                                                                                                                                                                                           161 ISSISSRIGDP
                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Gastroenterol. Hepatol. 3:215-222(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Domingo B., Mayumi M. "Nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis B virus (subtype adw / strain Philippino/prDw294)
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JUL-1993
01-JUL-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HPBVP
                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    isolated from a Philippino:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=31514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUL-1993
                                                                                                                                                                 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160
                                                                                                                                                                                                              2 LSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the same subtype."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۳
                                                                                                                                             HIMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PISSISSRTGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      surface
                                                                                                                                                                                                                               Similarity 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R.C.,
                                                                                                                                                                                                                                                                                                                                                             IPR000349;
                                                                                                                                                                                                                                                                     175
175
15
123
177
320
                                                                                      (Rel. 36, Created)
(Rel. 36, Last sequence update)
(Rel. 41, Last annotation update)
in 2 precursor (hBD-2) (Skin-antimicrobial peptide
                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chavez C.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antigen
                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                                                                                              174
400
15
123
177
320
43740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                           171
                                                                                                                                                                                                            12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ,
,
,
,
,
,
,
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12
                                           Chordata;
Primates;
                                                                                                                                                                                                                                        72.1%;
                                                                                                                                                                                                                                                                                                                                                        Hepvir_surfAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of a hepatitis B virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                      Œ.
                                                                                                                                                                                                                                                                           MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Okamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence up
annotation
                                                                                                                                                                                                                              ۲,
                                                                                                                                                                                                                                       Score 44;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     comparison
                                          Craniata; Vertebrata; Catarrhini; Hominidae
                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                    7EBD53A004136BD2
                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Η.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
on update)
                                                                                                                                                                                                                                                                           (GLCNAC . . .)
(GLCNAC . . .)
(GLCNAC . . .)
                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                             moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    400
                                                                                                                                                                                                                                      0.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lingao
                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                             There are no restrictions ng as its content is in
                                                                                                                                         $
                                           Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  genome of subtype adw
                                                                                                                                                                                                                             1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A.L.,
                                                                                                                                                                                                                                               Length 400;
                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                             Indels
                                                    Euteleostomi;
                                                                                                                                                                                                                                                                           (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Reyes M.T.,
                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                 collaboration -
                                                                                        1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genomes
                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

0

MEDLINE=97345625;

PubMed=9202117;

```
Submitted [5]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nature
[2]
                                                           EMBL; Z71389; CAAS5992.1; -. EMBL; AF004013; AAC33549.1; -. EMBL; AF071216; AAC69554.1; -. EMBL; AJ000152; CAB65126.1; -. PDB; 1FD3; 01-NOV-00. PDB; 1FD4; 01-NOV-01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            expression
Gene 222:23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-Placenta; PubMed-9831658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kluever E., Schulz A., Forssmann W.-G. "Chemical synthesis of beta-defensins J. Pept. Res. 59:241-248(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=20072673; PubMed=10603376; Diamond G., Kaiser V., Rhodes J., Russell J.P., Bevins C.L.; "Transcriptional regulation of beta-defensin gene expression tracheal epithelial cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Liu L., Wang L., Jia H.P., Zhao C., Heng H.H.Q., Schutte B.C., McCray P.B. Jr., Ganz T.; "Structure and mapping of the human beta-defensin HBD-2 gene and its expression at sites of inflammation.";
                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "The structure of human beta-defensin-2 order oligomerization.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=12010514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SYNTHESIS OF 24-64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Bauer F., Schweimer K., Kluver E.
Rosch P., Adermann K., Sticht H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hoover D.M., Rajashankar K.R., Blumenthal R., Chertov O., Lubkowski J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY (1.35 ANGSTROMS).
MEDLINE=20490730; PubMed=10906336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Intect. immun.
                                                                                                                     EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                    -!- SUBCELLULAR LOCATION: Secreted
-!- TISSUE SPECIFICITY: EXPRESSED
-!- INDUCTION: BY INFLAMMATION.
                                                                                                                                                                                                                                                                                                                                                               Protein Sci. 10:2470-2479 (2001).
-I- FUNCTION: HAS ANTIBACTERIAL ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                       structural conservation in the absence similarity.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=21571984; PubMed=11714914;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Transcriptional
                                                                                                                                                                                                                                                                                                                                                                                                                      "Structure determination
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRUCTURE BY NMR OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>6</u>
InterPro;
                                                  Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rder J.,
peptide
                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Biol. Chem.
                                                                                                                                                                                                                                                                                           SUBFAMILY.
                                                                                                                                                                                                                                                                                                        SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J., Bartels J.H., Christophers E., Schroeder J.-M.; tide antibiotic from human skin."; 387:861-861(1997).
                                                HGNC: 2767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schroeder J.M.;
ptional regulation
(AUG-1997) to the
     IPR001855; Defensin_beta.
IPR001271; Defensin_mammal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68:113-119(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275:32911-32918(2000)
                                                                                                                                                                                                                                                                                                          BELONGS
                                                  DEFB4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-64.
                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                            of human and murine
in the absence of sig
                                                                                                                                                                                                                                                                                                           HE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of the human beta-defensin-2 EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                               E)
,
                                                                                                                                                                                                                                                                                                           BETA-DEFENSIN FAMILY. LAP/TAP
                                                                                                                                                                                                                                                                                                                                    IN THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conejo-Garcia J.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ., Adermann K.;
and LEAP-1/hepcidin.";
                                                                                                                                                                                                                                                      is produced through a collaboration -
ormatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       shows evidence of higher
                                                                                                                                                                                                                                                                                                                                      SKIN AND RESPIRATORY
                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                         ine beta-defensins
significant sequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Puri A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Schutte B.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oppenheim
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Forssmann W.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (hBD-2).";
                                                                                                                                                                                                                                                                                                                                                                                                                            reveals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                               .ch/announce/
                                                                                                                                                                                                                                                                                                                                         TRACT
                                                                                                                                                                                                               commercia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J.J.,
                                                                                                                                                                                                                           2 S
```

```
NESULT 8

VNSA HPBVL

ID VNSA H

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P12911

AC P13911

AC P13911

AC P13911

AC P13911

AC P13911

AC ACRBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOUS

FT CARBOU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFFIFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
RESULT 9
VMSA_HPBVJ
ID VMSA_HPBVJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 7
                                                                                             밁
                                                                                                                                                                  Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00711; Defensin_b
SMART; SM00048; DEFSN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Antibiotic; Signal; SIGNAL 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outest the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@eisb-sib.ch).
                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                               Antigen.
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vaudin M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis B virus (strain 1sh / Viruses; Retroid viruses; Hepad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-OCT-1989
01-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-OCT-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             virus isolated from a naturally in:
J. Gen. Virol. 69:1383-1389(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10414;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VMSA_HPBVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "The complete nucleotide sequence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Harrison
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=88258473; PubMed=2838576;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; D00220;
                                                                                                                                                                                                                                                                                                                                                                                                              nterPro
                                                                                             150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLPGVFGGIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLSSIFSRIGDP
                                                                                                                                                                                                                                                                                                                                                                                                                             C28885;
                                                                                                                              LSSIFSRIGDP 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   surface
                                                                                               ISSVFSTTGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
7; Conserv
                                                                                                                                                                  7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                              IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wolstenholme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel. 12, Created)
(Rel. 12, Last sequence update)
(Rel. 14, Last annotation updat
se antigen precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                             389
                                                                                                                                                                                                                                                              1
164
4
112
116
309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        438121
3381
                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                               SAVLCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                  BAA00159.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                             ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
                                                                                                 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3D-structure.
23 POTE
64 BETA
60
53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7038 MW;
                                                                                                                                                                                                                                                                              112
166
                                                                                                                                                                                                                                                                                                                                   389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65.6%;
                                                                                                                                                                                                                                                 42539
                                                                                                                                                                                       63.6%;
                                                                                                                                                                                                                                                                                                                                                                                                          Hepvir_surfAg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     beta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         А. J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lsh / chimpanzee isolate).
Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pred. No. 0.75
                                                                                                                                                                                                                                                            MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
BETA-DEFENSIN
                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05D6454CE7ACD10E CRC64;
                                                                                                                                                                        Score 40; DB
Pred. No. 4.9;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tsiquaye K.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    infected
                                                                                                                                                                                                                                                 87D1F93382A10DBD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
75;
                                                                                                                                                                                           DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome of a hepatitis chimpanzee.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.
                                                                                                                                                                                                            1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zuckerman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 64;
                                                                                                                                                                                                              Length 389;
                                                                                                                                                                                                                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a collaboration -
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                              Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                0,
```

STANDARD;

PRT;

389

₽

```
RESULT
VNSA LT
VNSA LT
VNSA LT
VN
AC P1
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 011
DT 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                        N HPBVO
VMSA HPBVO
P17399;
01-AUG-1990
01-AUG-1990
01-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                            between
                      the European Bioinformatics Institute.
                                                                                                                                                          Okamoto H., Tsuda F., S
Miyakawa Y., Mayumi M.;
                                                                                                                                                                           MEDLINE=89010694; PubMed=3171552; Okamoto H., Tsuda F., Sakugawa H.,
                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                      Hepatitis B virus (subtype adw / strain Okinawa/poDW282).
Viruses; Retroid viruses; Hepadnaviridae; Orthohepadnavir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-89010694; PubMed=3171552; MEDLINE-89010694; PubMed=3171552; Sakugawa H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Viruses; ketroiu
NCBI_TaxID=10413;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; D00329; -; NOT_ANNOTATED_CDS.
PIR; G28925; SAVLJI.
InterPro; IDPR000349; Hepvir_surfag.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Gen. Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Miyakawa Y., Mayumi M.;
"Typing hepatitis B virus by homology in |
"Typing hepatitis B virus by homology in |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-AUG-1990
01-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00695; vMSA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Major surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 LSSIFSRIGDP : | | | | | |
                                  SWISS-PROT entry is copyright. It is produ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ISSILSKTGDP 160
                                                                                             hepatitis B virus by homology in son of surface antigen subtypes."; Virol. 69:2575-2583(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7; Conserv
      non-profit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164
164
112
116
309
389)
                                                                                                                                                                                                                                                                                                                                                      (Rel. 15,
(Rel. 15,
(Rel. 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              virus
troid v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                   antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15,
23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              163
389
4
112
166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (subtype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62.3%;
63.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42603
        institutions
                                                                                                                                                                                                                                                                                                                                                      Last
Last
                                                                                                                                                                                                                                                                                                                                   precursor.
                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                      Hepadnaviridae; Orthohepadnavirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e adw / strain Japan/pJDW233).
Hepadnaviridae; Orthohepadnavirus
                                                                                                                                                                                                                                                                                                                                              sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MAJOR SURFACE ANTIGEN.
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 38; DB
Pred. No. 12;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72F8D481924DC104 CRC64;
      86
                                                                                                                                                                       Sastrosoewignjo R.I., Imai
                                                      It is produced through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sastrosoewignjo R.I., Imai
long
                                                                                                                                                                                                                                                                                                                                                                                                                                 389
  There ong as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                      nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                               Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nucleotide sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
are
its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 389;
                                      and the
content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                    sequence:
                restrictions
                                      EMBL
                                                    a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                         3
                                    outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
2 G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RA Wood V., Gwilliam R., Rajandream M.A., Lyne M., Lyne R., Stewart A.,
RA Sgouros J., Peat N., Hayles J., Basham D., Bowman S.,
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Gollins M., Connor R., Cronin A., Davis P., Fellwell T., Fraser A.,
RA Gentles S., Goble A., Hamlin N., Harris D., Hidalgo J., Hodgson G.,
RA Holroyd S., Hornsby T., Howarth S., Huckle B.J., Hunt S., Jagels K.,
RA Gentles S., Goble A., Hamlin N., Harris D., Hidalgo J., Hodgson G.,
RA Holroyd S., Hornsby T., Howarth S., Huckle B.J., Hunt S., Jagels K.,
RA James K., Jones M., Leather S., McDean J.,
RA Goliver K., O'Neil S., Pearson D., Quail M.A., Rabbinowitsch E.,
RA Oliver K., O'Neil S., Pearson D., Quail M.A., Rabbinowitsch E.,
RA Goliver K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Taylor K., Taylor R.G., Tivey A., Walsh S. V., Warren T., Whitehead S.,
RA Taylor K., Taylor R.G., Tivey A., Walsh S. V., Warren T., Whitehead S.,
RA Woodward J., Volkaert G., Aert R., Robben J., Grymonprez B.,
RA Gabel C., Fuchs M., Fritzc C., Holzer R., Moest D., Hilbert H.,
RA Gabel C., Fuchs M., Fritzc C., Holzer R., Moest D., Hilbert H.,
RA Gerry R., Langer I., Beck A., Lehrach H., Reinhardt R., Pohl T.M.,
RA Berry M., Cadieu E., Dreano S., Gloux S., Lelaure V., Mottier S.,
RA Galibert F., Aves S. J., Xiang Z., Hunt C., Moore K., Hurst S.M.,
RA Gerrutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,
"The genome sequence of Schizosaccharomyces pombe.";
RL Nature 415:871-880 (2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE TO SERVICE CO.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-OCT-1996
01-OCT-1996
15-JUN-2002
                Nature 415:871-880(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _SCHPO
                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=21848401; PubMed=11859360; Wood V., Gwilliam R., Rajandream N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Fungi; Ascomycota;
Schizosaccharomycetales; Schi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Schizosaccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q102<del>6</del>9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AREH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPAC13G7.05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Probable sterol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; D00330; -;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00695; vMSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; H28925;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 LSSIFSRIGDP
               CATALYTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ISSILSKTGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SCHPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and this statement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR000349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    112
166
309
389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 34, Createq,
(Rel. 34, Last sequence update)
(Rel. 41, Last annotation update)
(Rel. 41, Last annotation update)
erol O-acyltransferase (EC 2.3.1.26) (Sterol-ester
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAVLJ2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 163
389
112
166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pombe (Fission yeast).
scomycota; Schizosaccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepvir_surfAg
             Acyl-CoA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Schizosaccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Μ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAJOR SUR
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CECACODDA3D84A10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
            cholesterol = CoA +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SURFACE ANTIGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC...)
(GLCNAC...)
(GLCNAC...)
(GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ņ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
            cholesterol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                         G.,
                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

- SUBCELLULAR LO reticulum (By - SIMILARITY: BE

LOCATION: Integral membrane protein. Endoplasmic By similarity).

BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hypothetical protein;
Endoplasmic reticulum
TRANSMEM 98 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002688; ACAT. Pfam; PF01800; ACAT; 1.
                                                                                                                                                                                                         STRAIN=0/UW-3/Cx;
STRAIN=99000809; PubMed=9784136;
MEDLINE=99000809; PubMed=9784136;
Stephens R.S., Kalman S., Lammel C.J., Fan J., Marathe R., Arav Stephens R.S., Kalman S., Lammel C.J., Fan J., Marathe R., Arav Mitchell W.P., Olinger L., Tatusov R.L., Zhao Q., Koonin E.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                     CHLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; Z69729; CAA93593.1; -.
                                                                                                                                                                                                                                                                                                                                                    30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Excinuclesse ABC subunit A.
                                                                                                                                                                                                                                                                                                                                                                                                                        UVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
This SWISS-PROT entry is copyright. It is production the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                Chlamydia trachomatis.
Bacteria; Chlamydiales; Chlamydiaceae; Chlamydia.
                                                                                                                                                                                                                                                                                                                                            UVRA OR CT333
                                                                                                                                                                  Science 282:754-759(1998)
                                                                                                                                                                                Chlamydia trachomatis."
                                                                                                                                                                                          "Genome sequence of an obligate intracellular pathogen of humans
                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 PLSSIFSRIGDP 12
                                                                                FUNCTION: THE ABC EXCISION NUCLEASE IS A DNA REPAIR ENZYME THAT CATALYZES THE EXCISION REACTION OF UV-DAMAGED NUCLEOTIDE SEGMENTS PRODUCING OLIGOMERS HAVING THE MODIFIED BASE(S). UVRA IS AN ATPASE AND A DNA-BINDING PROTEIN THAT PREFERENTIALLY BINDS SINCLE-STRANDED OR UV-IRRADIATED DOUBLE-STRANDED DNA (BY SIMILARITY). SUBUNIT: CONSISTS OF THREE SUBUNITS; UVRA, UVRB AND UVRC.
                                                         SUBCELLULAR LOCATION: Cytoplasmic (By similarity) SIMILARITY: BELONGS TO THE ABC TRANSPORTER FAMILY
                                               CONTAINS FOUR ABC DOMAINS.
                                                                                                                                                                                                                                                                                                                                                                                                                        CHLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRKSIFDRVTDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aemic reticulum;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 58...
7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98
140
174
199
305
344
462
517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160
194
219
325
364
404
482
537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63098 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transferase; Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Acyltransferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED (GLCNAC: . .) (P
41DBA79402B67A28 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                           1786
                   It is produced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
16;
                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 537
                                                              FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .) (POTENTIAL)
        through a collaboration d the EMBL outstation -
                                                              UVRA SUBFAMILY
                                                                                                                                                                                                                                        Aravind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

and

```
Ś
                                                                                                                                                                                            밁
                                          á
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                   Query Match
Best Local :
                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOS response; Excision nuclease; DNA
DNA-binding; Zinc-finger; Complete p)
NP BIND 32 3MTP (PO)
NP BIND 625 632 ATP (PO)
NP BIND 964 971 ATP (PO)
NP BIND 964 971 ATP (PO)
NP BIND 1516 1523 ATP (PO)
NP BIND 1516 1523 ATP (PO)
ZN FING 719 742 C4-TYPE
ZN FING 1602 1628 C4-TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the European Bioinformatics Institute. They use by non-profit institutions as long a modified and this statement is not removed. entitles requires a license agreement (See but the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1042 LESLFTRIGHP 1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00005; ABC_tran; 2.
ProDom; PD000006; ABC_transportr;
TIGRFAMs; TIGR00630; uvra; 1.
                                                                                                                                                                                         WormPep; F19C
Hypothetical
SEQUENCE 49
                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caenorhabditis elegans.
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1997
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGRFAMS; TIGR00630; UVTS; 1.
PROSITE; PS00211; ABC_TRANSPORTER; FALSE_NEG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR003439; ABC | InterPro; IPR004602; Uvra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AE001306; AAC67928.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209307;
                                                                                                                                                                                                                                                                                                            entities requires a license agreement (Some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (JAN-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Harris B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=Bristol N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                             EMBL; Z48006; CAA88050.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=6239;
  278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 LSSIFSRIGDP 12
                                             \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAEEL
                                                  PLSSIFSRIGD 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l Similarity
7; Conserv
                                                                                            l Similarity
5; Conserve
                                                                                                                                                                                                                                           F19C6.2; CE03231.
                                                                                                                                                                                            al protein.
495 AA; 55814 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Rel. 35, Created)
(Rel. 35, Last sequence update)
(Rel. 35, Last annotation update)
(45.1 kDa protein F19C6.2 in chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62.3%;
63.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            196948
                                                                                                                     60.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transportr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C4-TYPE.
                                                                                               Score 37; DB 1
Pred. No. 23;
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATP (POTENTIAL)
                                                                                                                                                                                              99E9B52032B0B48C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA repair;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02D6862EE15DE070 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL) .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          There are no res
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                 ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATP-binding; Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1786;
                                                                                                      2
                                                                                                                                                 Length 495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Сарв
                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                         0
```

```
OX CON DET DET DOUB
                                                                                                                                                                                                                                                     RESULT 15
                                                                                                                                                             밁
                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
MVIN_SYNY3
ID MVIN_SYNY3
AC Q55179;
                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                   Query Match
Best Local
                                                 DCUP CHLMU STANDARD
Q9PLHT;
16-OCT-2001 (Rel. 40, C
16-OCT-2001 (Rel. 40, L
15-JUN-2002 (Rel. 41, L
   16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Uroporphyrinogen decarboxylase (EC 4.1.1.37) (URC
HEME OR TC0123.
Chlamydia muridarum.
Bacteria; Chlamydiales; Chlamydiaceae; Chlamydia.
                                                                                                              CHLMO
                                                                                                                                                                                                                                                    TRANSMEM
TRANSMEM
TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                        TRANSMEM TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-MAY-2000
30-MAY-2000
16-OCT-2001
NCBI_TaxID=83560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
MEDLINE=96127529; PubMed=8590279;

"anaka A., Sato S., Kotani H., Sazuka
                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                              Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR004268; MVIN_like.
Pfam; PP03023; MVIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; D64001; BAA10319.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYNECHOCYSEIS SP. SETAIN PCC6803. I. Sequence features in the 1 region from map positions 64% to 92% of the genome.";
DNA Res. 2:153-166(1995).
-!- SUBCELLULAR LOCATION: Integral membrane protein (Potential).
-!- SIMILARITY: BELONGS TO THE MVIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sugiura M., Tabata S.,
"Sequence analysis of the genome of the unicellular cyanobacterium Synechocystis sp. strain PCC6803. I. Sequence features in the 1 Mb
                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kaneko T., Tanaka A., Sato S.,
Sugiura M., Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Virulence factor mviN homolog MVIN OR SLR0488.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=1148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteria; Cyanobacteria; Chroococcales; Synechocystis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synechocystis sp. (strain PCC 6803)
                                                                                                                                                                                                                  Local
                                                                                                                                                                               1 PLSSIFSRIGDP 12
                                                                                                                                                         PFLPVFSRLADP 311
                                                                                                                                                                                                       Similarity 6; Conser
                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Rel. 39, Created)
(Rel. 39, Last sequence update)
(Rel. 40, Last annotation updat
                                                                                                                                                                                                                                                   AA;
                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                          Complete proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                         116
116
155
186
216
216
273
304
350
350
442
442
                                                                                                                                                                                                                                                  57053 MW;
                                                                                                                                                                                                               50.0%;
                                                                           Created)
                                                                                                                                                                                                  Score 37; DB 1
Pred. No. 25;
2; Mismatches
                                                                                                                                                                                                     <u>ب</u>
                                                                                                                                                                                                                                             POTENTIAL.
POTENTIAL.
O0A5B612F744C1D2 CRC64;
                                                                                                                                                                                                                                                                                             POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL
                                                                                               334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                        1; Length 533;
                                      (URO-D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Η.
                                      (UPD)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Miyajima N.,
                                                                                                                                                                                                 0
                                                                                                                                                                                                Gaps
                                                                                                                                                                                                0
```

밁 Ś

```
Search completed: February Job time: 1.43902 Becs
                                                                                                                                                                                                Query Match
Best Local S
Matches 6
                                                                                                                                                                             PROSITE; PS00906; UROD 1; 1.

PROSITE; PS00907; UROD 2; 1.

PROSITE; PS00907; UROD 2; 1.

Lyase; Decarboxylase; Porphyrin biosynthesis; Complete proteome.

SEQUENCE 334 AA; 37380 MW; 199B6A88AC1F4D2D CRC64;
                                                                                                                                                                                                                                                      EMBL; AE002279; AAF39001.1; ... HSSP; P06132; IURO. TIGR; TC0123; ... InterPro; IPR000257; Uro decarbxyle. Pfam; PF01208; URO-D; 1.
                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Read T.D., Brunham R.C., Shen C., Gill S.R., Heidelberg J.F., White O., Hickey E.K., Peterson J., Utterback T., Berry K., Bass S., Linher K., Weidman J., Khouri H., Craven B., Bowman C., Dodson R., Gwinn M., Nelson W., DeBoy R., Kolonay J., McClarty G., Salzberg S.L., Bisen J., Fraser C.M.;
"Genome sequences of Chlamydia trachomatis MoPn and Chlamydia pneumoniae AR39.",
Nucleic Acids Res. 28:1397-1406(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic Acids Res. 28:1:
-!- CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -I- PATHWAY: Porphyrin biosynthesis.
-I- SUBCELLULAR LOCATION: Cytoplasmic (Probable).
-I- SIMILARITY: BELONGS TO THE UROPORPHYRINOGEN DECARBOXYLASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=20150255;
Read T.D., Brunha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM
STRAIN=MoPn /
                                                                  258
                                                                                                                            Local Similarity tes 6; Conserv
                                                                                               Ŋ
                                                               LSEIYRQLGDP
                                                                                             LSSIFSRIGDP 12
                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N.A.
весв
                                                               268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=10684935;
                                                                                                                                             54.5%;
                                                                                                                                                            59.0%;
             3, 2003, 09:24:21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Uroporphyrinogen-III =
                                                                                                                            ω
--
                                                                                                                                         Score 36;
Pred. No.
                                                                                                                            Mismatches
                                                                                                                                                       DB 1;
                                                                                                                        2
                                                                                                                                                         Length 334;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 coproporphyrinogen
                                                                                                                          Indels
                                                                                                                        0,
                                                                                                                        Gaps
                                                                                                                       0
```

